



Beef Industry Demographics

The 2016 Census of Agriculture provides a wealth of detailed information on the beef cattle sector. There were 59,784 farms reporting beef cattle in 2016, down 12.6% from the 68,434 farms in 2011. This is slower than the decline seen between 2006 and 2011 at 23.6% but larger than 2006 (-7.9%) and 2001 (12.2%). The last time the number of beef farms increased (+1.9%) was between 1991 and 1996. A larger decline was seen in the stocker sector (-29%) compared to cow/calf (-11.5%) and finishing (-12.4%); but this may be due to how farms are defined. The beef farms were identified as 89% cow/calf, 5% stocker and 6% finishing, although some farms maybe integrated with multiple stages of beef production occurring. The stocker aspect may have been integrated into either cow/calf or finishing operations with fewer producers specializing in this area.

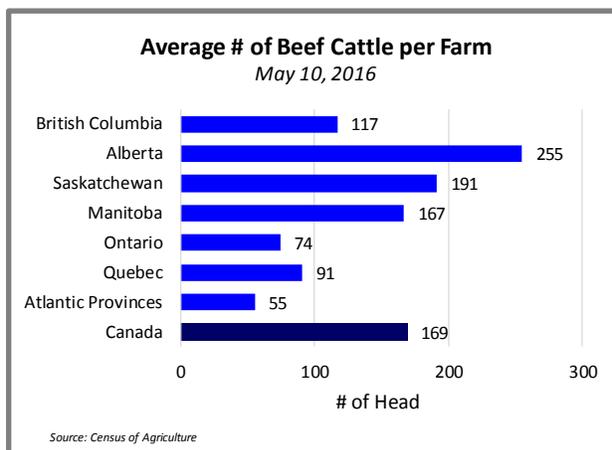
Table 1. Canadian Beef Farms

	Beef Farms	Cow/Calf	Stockers	Finishing
Canada	59,784	53,236	2,921	3,627
Alberta	18,638	16,909	759	970
Saskatchewan	13,040	12,383	380	277
Ontario	11,970	9,293	971	1,706
Manitoba	5,994	5,583	247	164
British Columbia	4,241	3,826	211	204
Quebec	4,050	3,662	183	205
Atlantic	1,851	1,580	170	101

Massive Consolidation despite a relatively steady cow herd

After the large drop in inventories between 2006 and 2011, the beef cow herd has been relatively steady since then and was down only 3% in 2016 to 3.7 million head. However, the 2011 numbers showed only minor changes in herd sizes while the 2016 data shows that the last five years as seen significant consolidation with fewer small herds and more large herds.

The average number of beef cattle per farm varies significantly from a low of 55 head in the Atlantic provinces to a high of 255 head in Alberta. But this says very little about where the majority of production occurs. In fact, 39% of beef farms have less than 47 head and represent only 6% of the beef cows in Canada. This is followed by 27% of farms having 48-122 head, representing 15% of the beef cows. Combined 66% of beef farms have less than 122 head. In contrast, 56% of beef cows are on farms with more than 272 head, but represent only 15% of the farms reporting.



The trend of consolidation continues with fewer small farms and more large farms. But some of these changes have been significant in the last five years.

Particularly the proportion of beef cows on farms with less than 47 head which went from 69% of farms reporting and 19% of beef cows in 2011 to 39% of farms and 6% of beef cows in 2016. And the proportion of beef cows on farms with more than 272 head which went from 3% of farms reporting and 23% of beef cows in 2011 to 15% of farms and 55% of beef cows in 2016.

Table 2. Beef cow herd size

Herd Size	Farms reporting	Beef cows	% of Farms Reporting	% of Beef Cows
<47 head	20,856	235,250	39%	6%
47-122 head	14,351	544,531	27%	15%
122-272 head	9,745	854,111	18%	23%
273-527 head	5,052	866,248	10%	24%
>528 head	2,797	1,154,088	5%	32%

Source: 2016 Census of Agriculture

Has the face of the beef producer changed? A portrait of a cattle farm operator today

Ask people to describe a typical beef producer in Canada and the image they describe - likely male and middle aged - isn't far from the truth. According to the 2016 Census of Agriculture more than half of the beef cattle farm operators are 55+ years of age, predominately male, and sole operators. But younger operators and women are accounting for a larger share of producers, even if they are starting from a small base.

Multi-generation farms represent only 12% of beef cattle farms reporting in 2016, but only 6.8-19% of them have a written succession plan. While this is higher than the average of 6.7% for all beef farms it is still low. Among the beef farms with written succession plans 97% of the successor(s) were family members. The highest rates of written succession plans were on multi-generation farms in Quebec (31-35%); but provincially Alberta (8.5%) and Saskatchewan (7%) lead the way. The percentage of beef farms with a written succession plan is lower than other commodities (grains/oilseed 10.4%, hogs 12.6%, poultry and eggs 12.9%, and dairy 18.6%) which may not be surprising given the number of multi-generation farms. Encouraging new entrants into the beef sector will be key to future growth. In fact, the proportion of farms with a sole operator under 35 years of age, at 6.8%, is almost equal with those with written succession plans.

More Younger Entrants

The proportion of cattle farms with operators under 35 years of age (with single or multiple operators) increased from 7.9% in 2011 to 10.7% in 2016, led by Manitoba (12.2%) and Saskatchewan (12.1%). This trend parallels the increasing share of farm operators under 35 years of age in all agricultural operations. This was the first percentage increase in farm operators under 35 since 1991.

Table 3. Age of Beef Producers by Province

% of Beef Cattle Farms Reporting	Canada	BC	AB	SK	MB	ON	QC	AP
<35 years of age	6.8%	3.7%	6.8%	8.4%	8.1%	6.4%	4.7%	4.4%
35-54 years of age	30.7%	24.0%	31.2%	32.9%	33.7%	28.1%	33.4%	25.6%
>55 years of age	50.6%	58.0%	50.0%	47.5%	46.0%	53.9%	47.8%	60.4%
<35 years & 35-54 years	1.8%	2.1%	1.8%	1.8%	1.9%	1.7%	2.2%	1.4%
<35 years & >55 years	1.7%	1.7%	1.5%	1.4%	1.8%	1.7%	2.5%	1.7%
35-54 years & >55 years	8.1%	10.0%	8.2%	7.5%	8.1%	7.8%	9.0%	6.3%
<35 years, 35-54 years & >55 years	0.4%	0.5%	0.4%	0.5%	0.5%	0.4%	0.5%	0.2%
<35 year of age (on all operations)	10.7%	8.0%	10.6%	12.1%	12.2%	10.2%	9.8%	7.7%

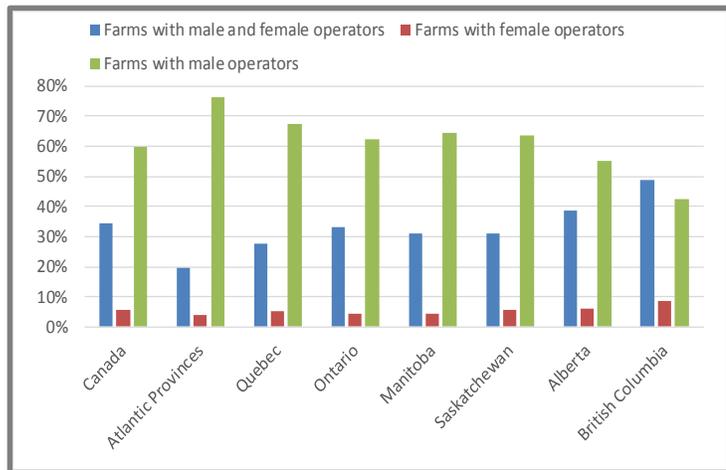
Source: 2016 Census of Agriculture

There are definitely a few incentives for young people to get into/continue in farming, said Emily Ritchie, Youth Leadership Coordinator with the CCA. "Programs like the Cattlemen's Young Leaders help create energy and excitement around cattle production, while still encouraging further education," she said. "Although there are programs like FCC's Young Farmer Loan, that create financial incentive for young farmers, high land prices and other financial barriers make it difficult for young producers to enter the business."

More Women

The proportion of beef farms with both male and female operators (defined as being primary decision makers) has been over 30% since the early 1990s. The share of women operators, as the primary decision maker or present on a multi-operator farms, has been growing since 1996 (32.8%) and increased from 37.4% in 2011 to 40.2% in 2016. B.C. has the highest proportion of female cattle farm operators in Canada at 57.4% in 2016, up from 54% in 2011.

These numbers are also mirrored in the number of solely women operators which have increased from 3.5% in 1996 to 5.6% in 2016. B.C. has the highest proportion at 8.5% followed by Alberta (6.2%), Saskatchewan (5.6%), Quebec (5%), Ontario (4.6%), Manitoba (4.5%), and the Atlantic Provinces (4.1%). Female operators are slightly more likely to be found on cow-calf operations (5.7%), compared to stocker (4.2%) or finishing operations (4.5%). Enthusiasm for agriculture, opportunities within the industry, as well as the lifestyle play a role in these decisions. While numbers are growing, there remain barriers for females that extend beyond what a young entrant faces.



Adoption of Management Practices on Beef Cattle Farms

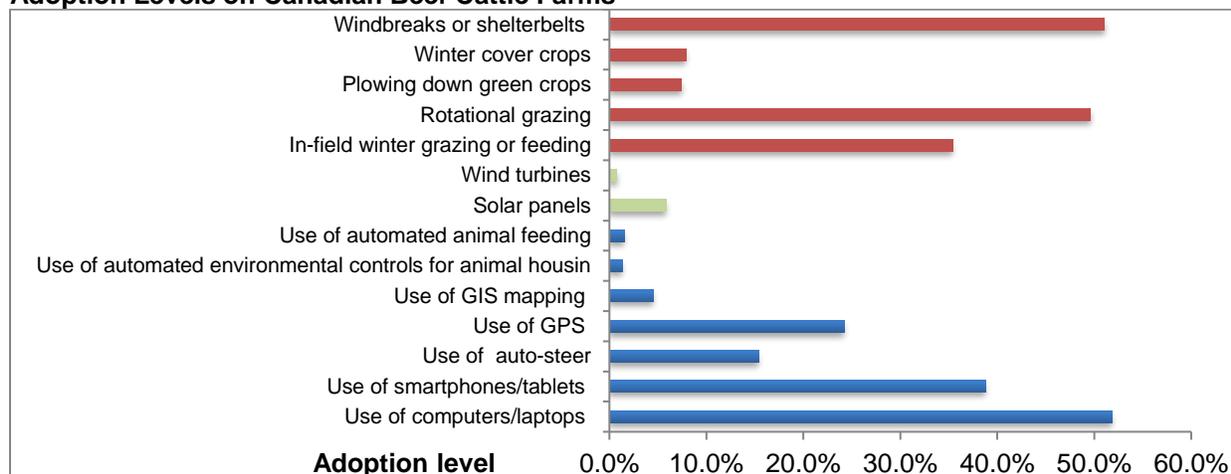
Technology is changing people's lifestyle, and also the farming style. Innovation through adopting technology and management practices allows farms to be more cost and time efficient. Age and the number of operators on a farm are relevant variables for technology adoption on beef cattle farms according to the 2016 Census of Agriculture data.

Over half (52%) of beef cattle farms indicated that they use computer or laptops for farm management. Over one third (39%) of beef farms indicated they use smartphones or tablets for farm management. GPS technology, which is used in precision farming to map fields, tractor guidance, variable rate application and yield mapping also allows producers to work during low visibility conditions such as fog and at night, is being used on 24% of beef cattle farms. Auto-steer technology, can effectively cutting down on energy and time waste by reducing the overlap between passes of machines, is used on 15% of the beef cattle farms.

Farms with operators over 55 years of age account the largest share of the total number of farms (50.6%), but have the lowest percentage of technologies adoption level. Whereas, farms with operators under 35 years of age, both on farms with single and multiple operators (10.7%), have higher rates of technology adoption.

In general, Alberta and Saskatchewan have the largest proportion of beef cattle farms and the highest rates of technology adoption. In contrast, British Columbia, Quebec, and the Atlantic provinces have the smallest proportion of beef cattle farms and lower rates of adoption.

Adoption Levels on Canadian Beef Cattle Farms



Adoption of Management practices on beef cattle farms

Management practices are essential because it can significantly lower farm production costs, improve efficiency and profits. Overall, 51.1% of Canadian beef cattle farms have windbreaks or shelterbelts (natural or planted), 49.7% use rotation grazing, and 35.4% use in-field winter grazing or feeding. A smaller proportion 7.9% use winter cover crops and 7.5% plow down green crops into the soil, which helps to improve soil tilth and fertility.

As expected, adoption rates vary by region as appropriate to the local climate. Windbreaks and shelterbelts are largely seen in the Prairie Provinces (56-62%); in-field winter grazing or feeding is popular in BC (49.4%), Alberta (45.8%) and Saskatchewan (40%) but drops the further east you go with Manitoba at 30.7% and central Canada around 20%.

In general, farms with multiple operators have the highest farm practices adoption rate. Farms in Alberta tend to have higher adoption rates of the noted management practices, followed by farms in British Columbia. Farms in Quebec tend to have lower adoption rates. Rotational grazing breaks the trend with Quebec (58.6%) leading the way followed by BC (57.4%) and Alberta (54%). The lowest adoption of rotational grazing is in Saskatchewan (43.4%) and Ontario (44.1%).

Table 4: Adoption Levels of Farm Practices

	Total # of farms	In-field winter grazing or feeding	Rotational grazing	Plowing down green crops	Winter cover crops	Windbreaks or shelterbelts
Canada		35.4%	49.7%	7.5%	7.9%	51.1%
Atlantic Provinces	3.1%	15.9%	50.7%	12.5%	8.9%	36.4%
Quebec	6.8%	20.6%	58.6%	12.9%	4.5%	24.0%
Ontario	20.0%	19.9%	44.1%	18.4%	20.9%	38.8%
Manitoba	10.0%	30.7%	48.0%	2.9%	5.6%	58.5%
Saskatchewan	21.8%	40.0%	43.8%	2.9%	4.0%	56.5%
Alberta	31.2%	45.8%	54.1%	3.6%	4.1%	61.9%
British Columbia	7.1%	49.4%	57.4%	6.8%	6.3%	43.2%

Renewable energy practices on cattle farms

Renewable energy practices are less common compared to other production practices. The most common are solar panels with 5.9% of farms and wind turbines on 0.8% of farms. Farms with multiple operators have the highest renewable energy adoption rate, ranging between 6.6-10.5% for solar panels and 0.9-1.6% for wind turbines. Farms with a single operator had the lowest renewable energy adoption rate, 5.4-6.2% for solar panels and 0.5-0.8% for wind turbines. Farms in Ontario (7.6% solar, 1.5% turbines), followed by Alberta (6.7%, 0.7%), have the highest renewable energy adoption rate, whereas, farms in Quebec (1.6%, 0.3%) have the lowest adoption rate.

Land Tenure

One of the major barriers for young farmers to enter the cattle industry is land acquisition. According to 2016 Census of Agriculture, 57.5% of beef farm land is owned, 20.2% is rented or leased from government, 22.9% is rented or leased from others and 2% is crop shared. Small amounts of land are used by others.

Operators who are under 35 years of age, tend to have a lower percentage of owned land at 40.9% and a higher proportion that is rented or leased from others at 39.4%. While operators under 35 years old represent 6.8% of beef farms their total farm area is smaller at 4.7% of beef farm acres.

Table 5: Land ownership of Canadian beef cattle farms, % of total land farmed

Operators age profile	Farm area owned	Area rented or leased from governments	Area rented or leased from others	Area crop shared from others
All Farms	57.5%	20.2%	22.9%	2.0%
<35 years of age	40.9%	15.3%	39.4%	3.5%
35-54 years of age	53.9%	16.2%	28.3%	2.5%
>55 years of age	62.3%	23.8%	17.0%	1.6%
<35 years & 35-54 years	47.9%	14.6%	35.6%	2.3%
<35 years & >55 years	51.4%	25.1%	22.0%	1.5%
35-54 years & >55 years	58.4%	19.2%	21.8%	2.1%
<35 years, 35-54 years & >55 years	57.4%	14.1%	27.3%	2.4%
<i>*columns add to more than 100% due to crop sharing acres</i>				

Farm area owned is the dominant land tenure in all the provinces. Despite having the smallest area of cattle farmland, Atlantic Provinces and Quebec have the largest proportion of farm area owned (79% and 78% respectively) and a relatively low proportion of farmland rented from government (4%, 0%) and others (13%, 22%). British Columbia, on the other hand, has the lowest percentage of farm area owned (48%) and highest percentage of farmland rented from the government (38%).

Table 6: Land ownership in Canadian beef cattle farms summarized by province

Province	Total area owned	Area rented or leased from government	Area rented or leased from others
Canada	57.5%	20.2%	22.9%
Atlantic Provinces	78.8%	3.7%	13.4%
Quebec	77.6%	0.3%	22.0%
Ontario	67.3%	0.6%	30.6%
Manitoba	63.6%	14.8%	24.5%
Saskatchewan	57.9%	20.5%	22.8%
Alberta	54.2%	22.3%	23.4%
British Columbia	47.7%	38.3%	13.1%

Land Management

Land management practices vary by the region and year as appropriate to the local climate. The Census asked about the 2015 production year; but it is unclear on what proportion these management practices apply to annual cropland versus forage or pasture acres. In 2015, 4.7% of total beef cattle farm acres used baled crop residue, 24.6% had herbicides applied, 3.1% used insecticides and 5.9% used fungicides. Moreover, farms with operators under 35 years of age have the highest percentage of using baled crop residue; farms with multiple age groups operators have the highest rates of herbicides, insecticides, and fungicides.

Farms in Ontario have the highest rate of using baled crop residue (7.2%). Farms in Manitoba (11%) and Saskatchewan (30%) have the highest rate of using fungicides and herbicides, respectively.

Manure, solid or liquid, incorporated or not incorporated, was applied to 3.5% of acres with a range of 1.6% in British Columbia and a high of 21.9% in Quebec. In general, western Canada where 75% of beef cattle

are located have manure applied to a limited number of acres (1.6-3.5%). This partly reflects the use of in-field winter feeding (see above).

Table 7: Land Management, percentage of total beef cattle farm acres

Province	Baled Crop Residue	Herbicides	Insecticides	Fungicides	Commercial Fertilizer	Manure
Canada	4.7%	24.6%	3.1%	5.9%	25.0%	3.5%
Atlantic Provinces	4.9%	10.3%	2.5%	3.4%	16.5%	11.5%
Quebec	6.0%	11.2%	0.8%	1.2%	12.9%	21.9%
Ontario	7.2%	27.1%	9.7%	7.8%	31.5%	14.2%
Manitoba	5.9%	27.4%	3.6%	11.0%	29.7%	3.5%
Saskatchewan	4.2%	30.0%	3.5%	7.2%	28.4%	2.1%
Alberta	5.3%	23.5%	2.5%	4.2%	23.9%	2.6%
British Columbia	0.5%	1.6%	0.1%	0.1%	5.1%	1.6%

Organic farms

Among the 59,784 beef cattle farms that reported to the 2016 Census, only 1.3% of the farms have full organic farm certification and 0.2% of the farms are transitioning. Farms with multiple age group operators have a higher percentage of both certified and transitional organic farms. But there is no difference in adoption of organic practices based on herd size. Saskatchewan (2.4%) has the most fully certified organic farms in Canada but a smaller proportion of transitioning organic farms indicating adoption has slowed and the market may be reaching maturity. Whereas Quebec has a lower percentage of certified organic the most transitioning organic farms indicating demand may be stronger there.

Table 8: Organic beef cattle farms as a proportion of the Provincial total

Province	Certified organic farms	Transitional organic farms	Total organic farms
Canada	1.3%	0.2%	1.5%
Atlantic Provinces	1.0%	0.3%	1.2%
Quebec	1.7%	0.5%	2.1%
Ontario	1.2%	0.3%	1.4%
Manitoba	0.9%	0.1%	1.0%
Saskatchewan	2.4%	0.2%	2.6%
Alberta	0.8%	0.2%	1.0%
British Columbia	0.8%	0.2%	1.1%

Examining beef farm employment and off-farm work

According to the 2016 Census of Agriculture, 22% of beef cattle farms had paid employees. Stocker operations had the highest percentage (30%), followed by finishing operations (27%) and cow-calf operations (21%). A larger number of operations offset the lower percentage of the latter group, resulting in the cow-calf sector representing 78% of the total number of employees.

Of the 38,251 employees reported, 44% were family members, highlighting how cattle operations remain primarily family farms even when paying employees. Perhaps not surprisingly, employment rates on beef cattle farms are the highest in Alberta (35%), followed by Saskatchewan (18%) and Ontario (14%).

Seasonal labour also plays an important role on cattle farms, accounting for more than half of on-farm employments. In 2015, of the 38,251 people employed on cattle farms, 51% were paid on a seasonal or temporary basis, 35% were paid on a year-round full-time basis (30 or more hours per week), and 14% were paid on a year-round part-time basis (less than 30 hours per week).

The proportion of operators with off-farm work has declined

There are a variety of reasons why a producer may choose to have an off-farm job. The proportion of cattle operators receiving a wage or salary from another job or operating a business that is not involved with the agricultural operation decreased to 47.1% in 2015 from 50.1% in 2010. Most cattle producers with off-farm

employment have less than 40 hours per week on average contributed to the agricultural operation. This is not surprising given farming is largely seasonal in labour demands.

Table 9: Percentage of cattle operators' time contributed to the agriculture operation

	More than 40 hours /week	30 - 40 hours /week	20 to 29 hours /week	Less than 20 hours /week	Received off-farm income
All age classes	43.3%	16.4%	17.1%	23.2%	47.1%
Under 35 years of age	37.1%	15.1%	18.4%	29.4%	65.6%
35 - 54 years of age	42.2%	15.5%	18.0%	24.3%	60.2%
55 years of age and over	45.0%	17.2%	16.3%	21.5%	35.6%

Almost half (43.3%) of operators worked more than 40 hours per week on the agricultural operation in 2015. Saskatchewan reported the most full-time farm operators (52.3% worked more than 40 hours on agricultural operation), followed by Manitoba (49.4%). Operators 55 years and over reported had more people working 30 or more hours per week than other age groups. This may reflect younger producers who have off-farm income until they can transfer to full-time farming. Stocker operators spent the most time on the farm with 52% of farm operators working more than 40 hours per week on stocker sector.

Farm financials

According to the 59,784 farms that reported to the 2016 census, there was \$19 billion in total gross farm receipts and \$16 billion in total operating expenses, which results in an expense-to-receipt ratio of 0.87 in 2015. The expense-to-receipt ratio is an indicator of financial health. A small expense-to-receipt ratio indicates a better financial situation.

Farms with an operator 55 years of age and over had the highest gross farm receipts, and also the highest total operating expenses, to record the highest expense-to-receipt ratio (0.89). This was closely followed by farms with operators both under 35 years of age and between 35 and 54 years of age (0.88). However, farms with two operators, between 35 and 54 years of age and 55 years of age or over, had the lowest expense-to-receipt ratio at 0.82. Farms with multiple generations had expense-to-receipt ratios ranging from 0.82 to 0.88; while farms with operators in a single age category ranged between 0.85 and 0.89.

Farms with gross farm receipts less than \$50,000 had expenses higher than receipts, whereas farms that reported gross farm receipts between \$250,000 and \$999,999 had the lowest expense-to-receipt ratio among all farms at 0.81. Larger was not necessarily better at 0.91 for operations with receipts over \$2 million. There is great diversity within beef operations, with multiple ways of building a financially viable operation.

Table 10: Financial situation of Canadian cattle farms in 2015

	Gross farm receipt	Total farm operating expenses	Expense-to-receipt ratio
All cattle farms	19,446,819,386	16,857,996,671	0.87
Breakdown by operator age			
Under 35	787,107,694	671,023,557	0.85
35-54	5,847,605,441	5,000,396,447	0.86
55 and over	9,587,662,371	8,495,983,865	0.89
Under 35 & 35-54	423,488,161	373,875,717	0.88
Under 35 & 55 and over	496,108,067	413,051,102	0.83
35-54 & 55 and over	2,127,465,309	1,754,696,328	0.82
<35 & 35-54 & 55 and over	177,382,343	148,969,655	0.84
Breakdown by farm size			
Under \$10,000	33,844,076	77,171,138	2.28
\$10,000 - \$24,999	144,942,296	188,669,103	1.30
\$25,000 - \$49,999	316,128,233	322,555,301	1.02
\$50,000 - \$99,999	662,091,894	593,247,330	0.90
\$100,000 - \$249,999	1,905,961,302	1,570,759,071	0.82
\$250,000 - \$499,999	2,450,435,935	1,974,592,001	0.81
\$500,000 - \$999,999	2,875,557,000	2,327,854,546	0.81
\$1,000,000 - \$1,999,999	2,549,121,217	2,079,922,629	0.82
\$2,000,000 and over	8,508,737,433	7,723,225,552	0.91