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Measurement of structural changes in Canadian agriculture

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OECD Network on Farm-Level Analysis

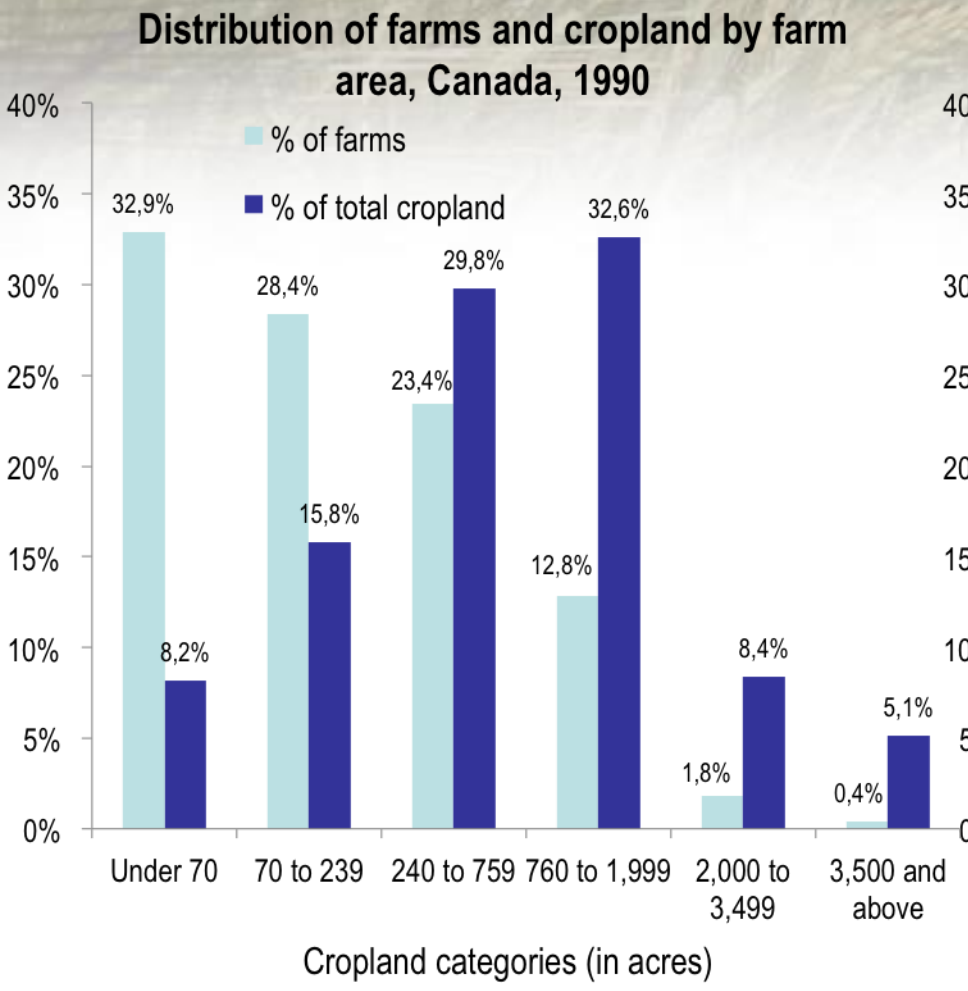
November 2014

Canada

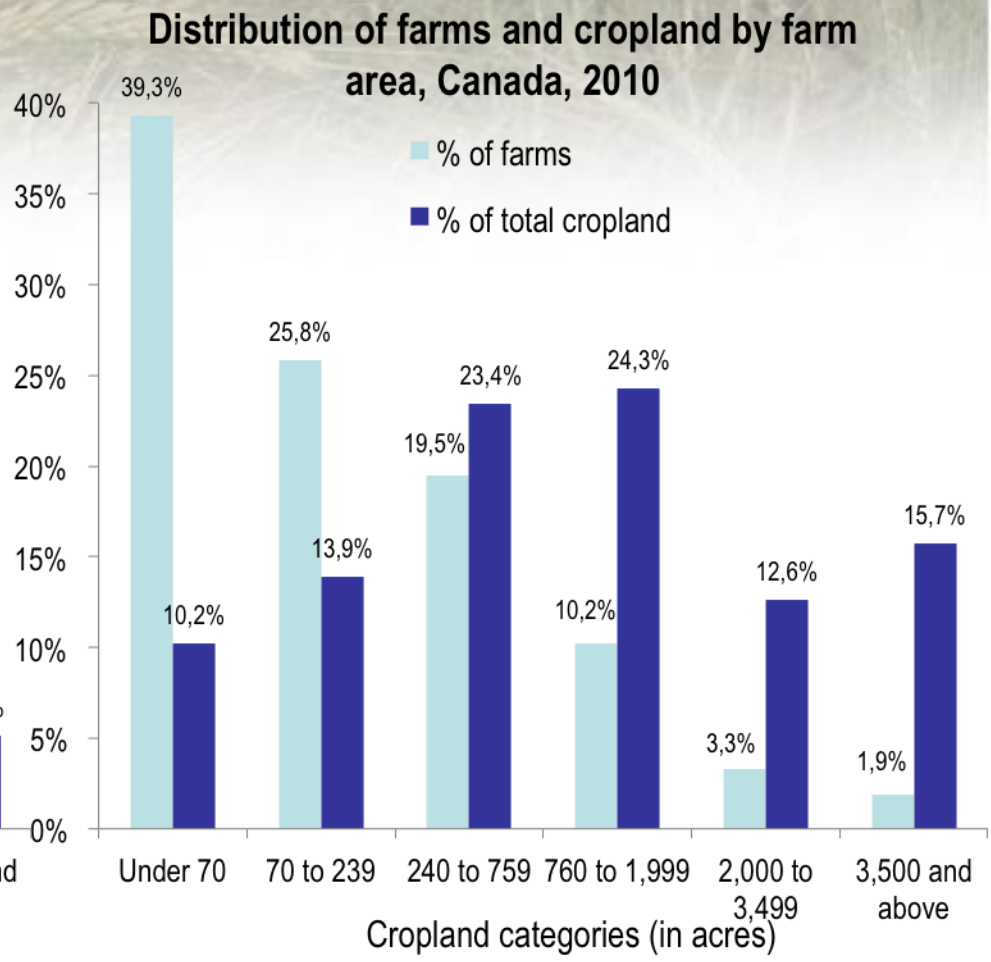
Approach

- Examine trends shown by different indicators for:
  - cropland area (scope: top crop farms that contribute to 90% of gross agricultural output)
  - gross agricultural output (scope: top farms that contribute to 90% of gross agricultural output)
- Based on micro data from censuses of Agriculture from 1991 to 2011

Large farms are getting disproportionally large over time, while mid-sized farms become fewer

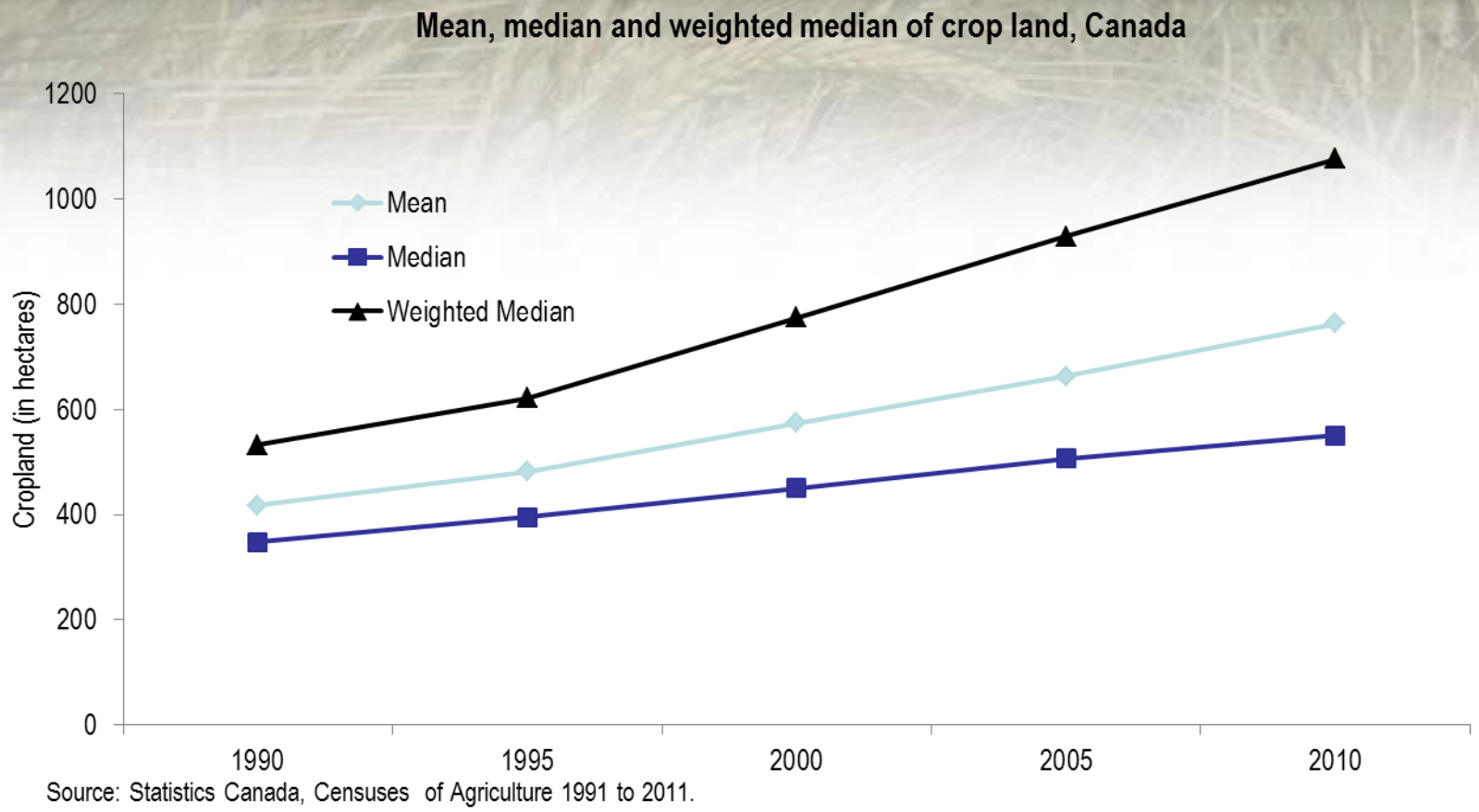


Source: Statistics Canada, 1991 Census of Agriculture.



Source: Statistics Canada, 2011 Census of Agriculture.

Consolidation in agriculture is not much reflected by the average



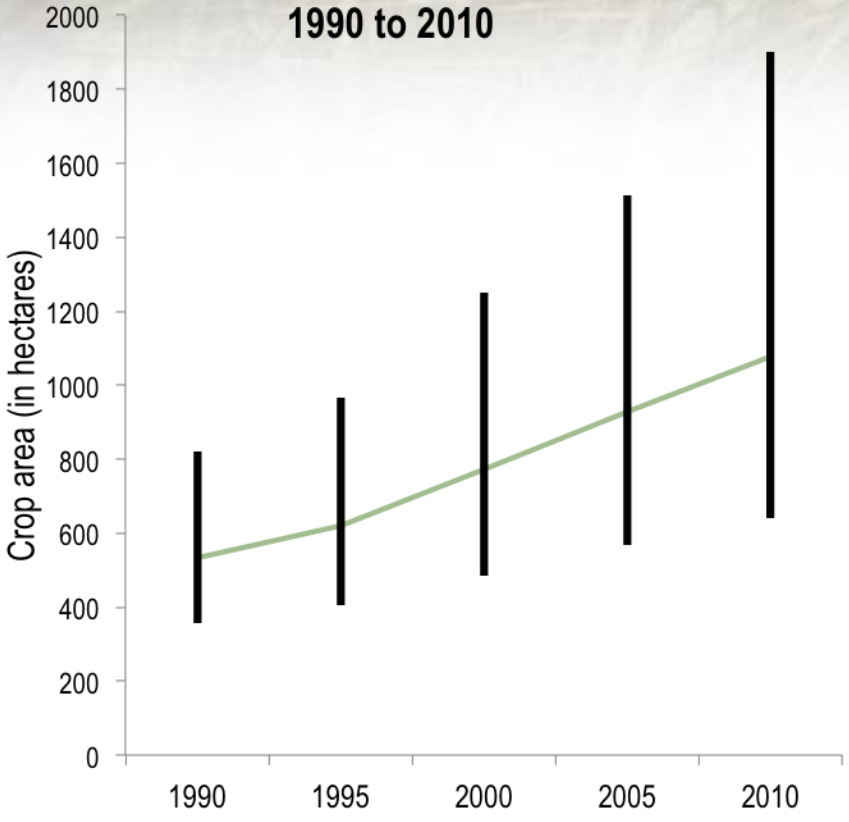
Interpretation:

Median: Level below and above which are 50% of observations ranked by cropland area.

Weighted median: Level below and above which is 50% of all cropland, when observation are ranked by cropland.

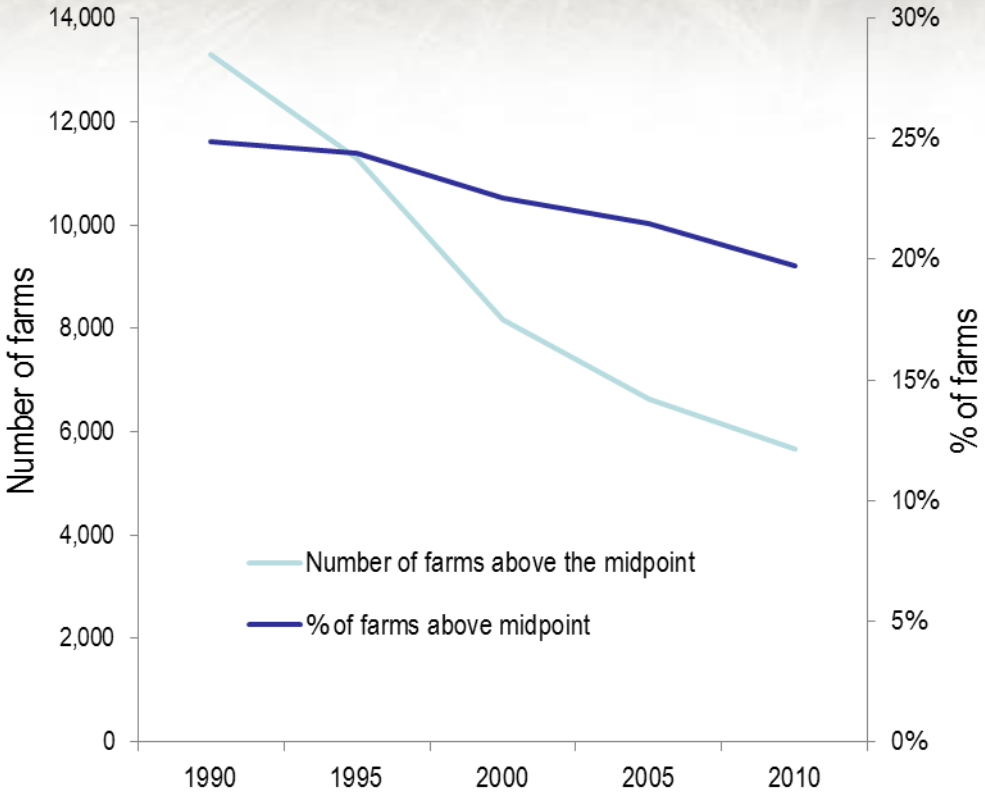
There is a persistent shift of cropland allocation toward bigger farms

Weighted median and quartiles for cropland, for crop farms in Canada, 1990 to 2010



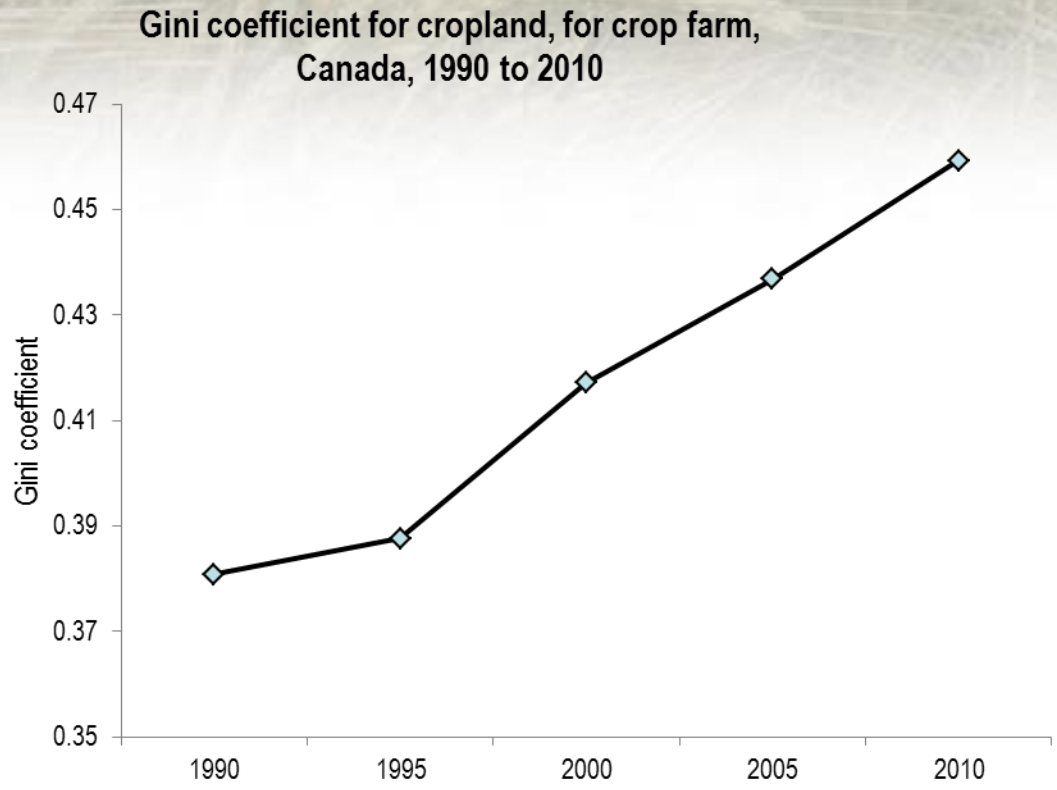
Source: Statistics Canada, Censuses of Agriculture 1991 to 2011.

Number and percentage of the biggest crop farms that operate half cropland, Canada, 1990 to 2010



Source: Statistics Canada, Censuses of Agriculture 1991 to 2011.

Inequality in distribution of cropland is on the rise

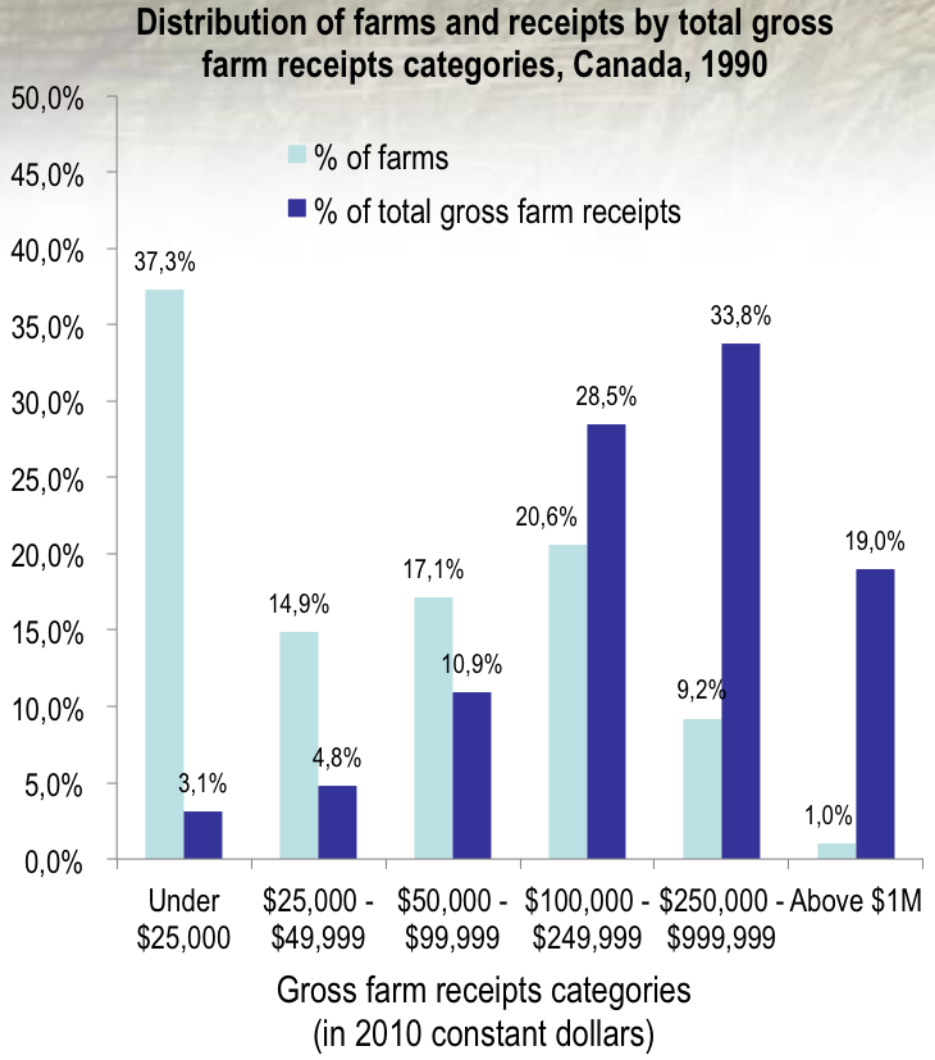


Source: Calculated based on Statistics Canada's Censuses of Agriculture 1991 to 2011.

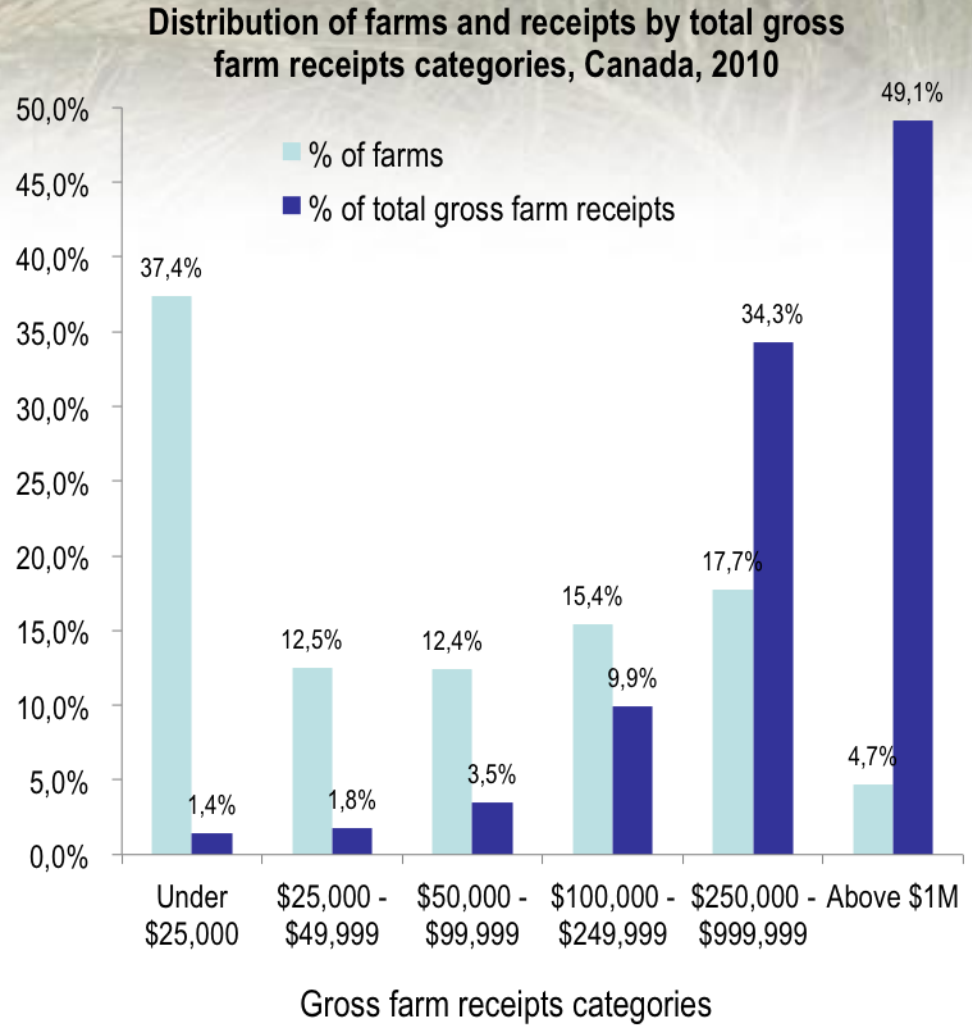
<u>Interpretation</u>: Gini coefficient of:

- Zero would reflect a perfectly equal distribution of cropland among crop farms.
- One would mean that all the cropland is operated by one farm.

The share of large farms is growing at the expense of mid-sized farms, their share of gross farm receipt grew more than proportionally

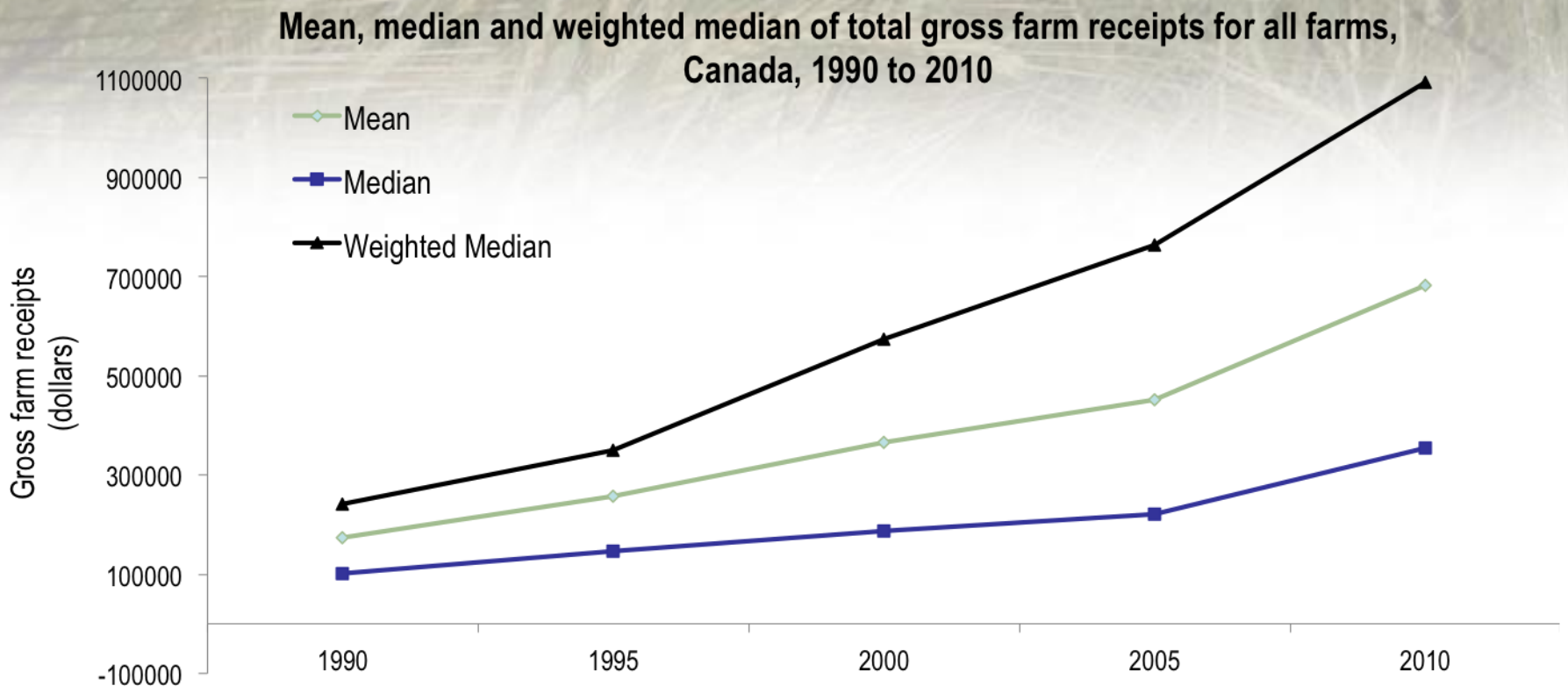


Source: Statistics Canada, 1991 Census of Agriculture.



Source: Statistics Canada, 2011 Census of Agriculture.

The weighted median more than quadrupled over two decades



Source: Statistics Canada, Censuses of Agriculture 1991 to 2011.

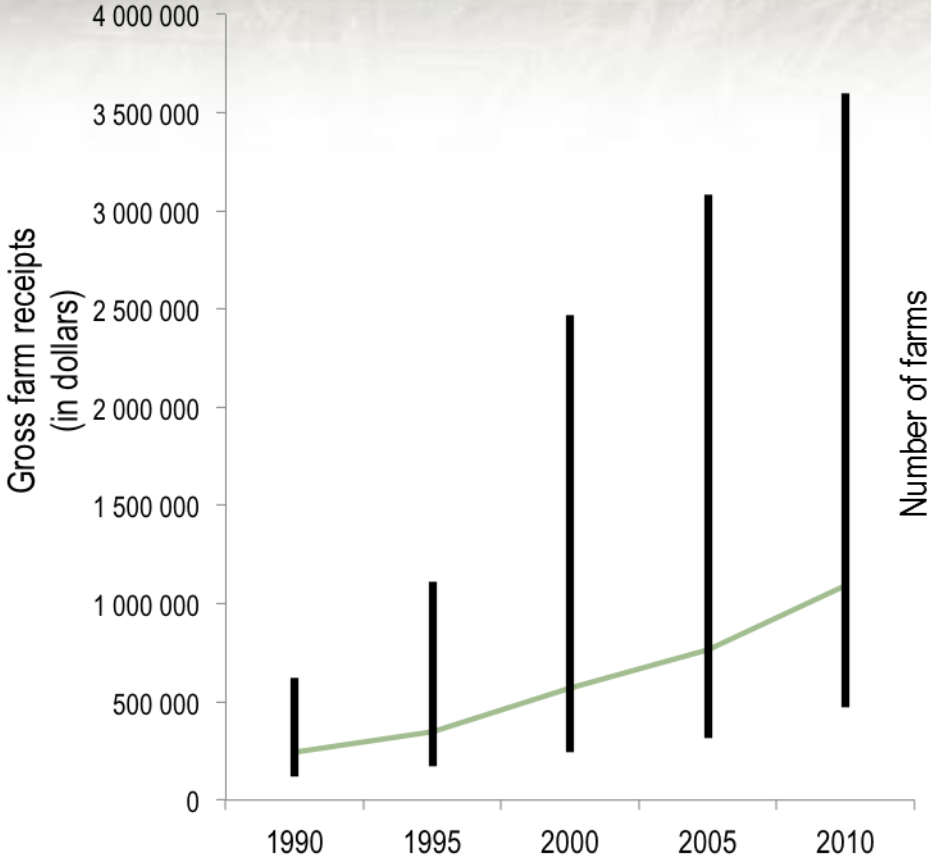
Interpretation:

Median: Level below and above which are 50% of observations ranked by gross farm receipts.

Weighted median: Level below and above which is 50% of gross farm receipts when observation are ranked by gross farm receipts.

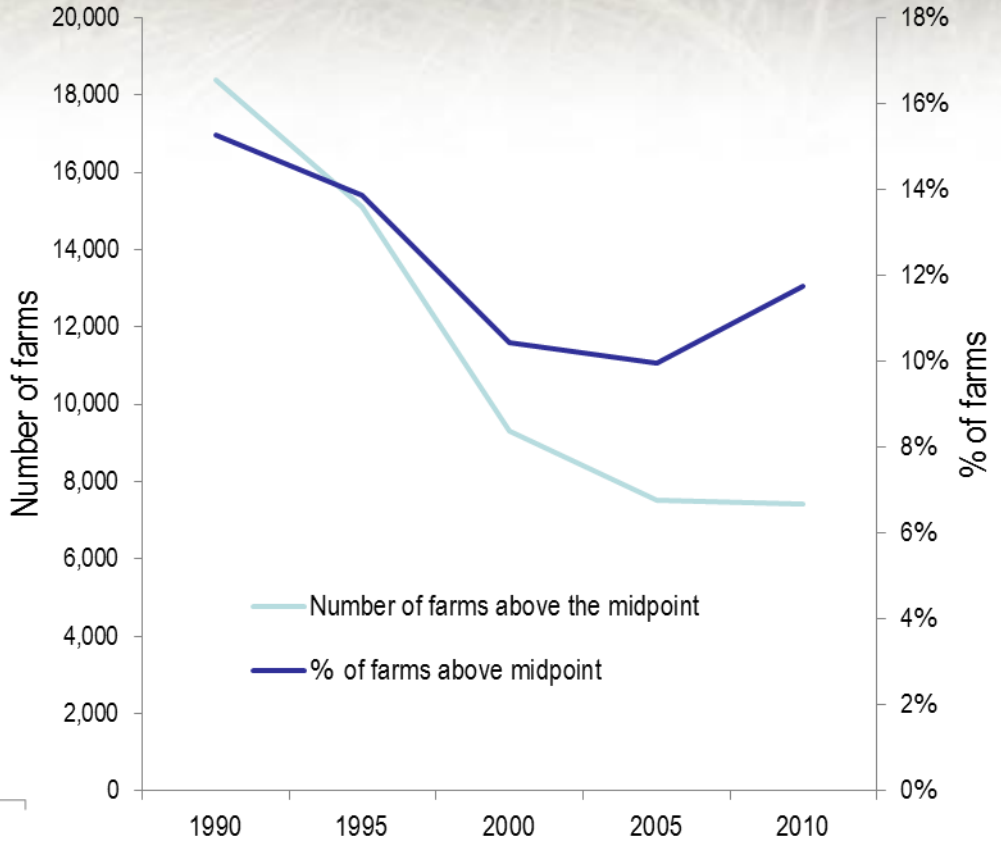
The top weighted quartile went from $620,000 in gross farm receipts in 1990 to $3.6M in 2010

Weighted median and quartiles for gross farm receipts, Canada, 1990 to 2010



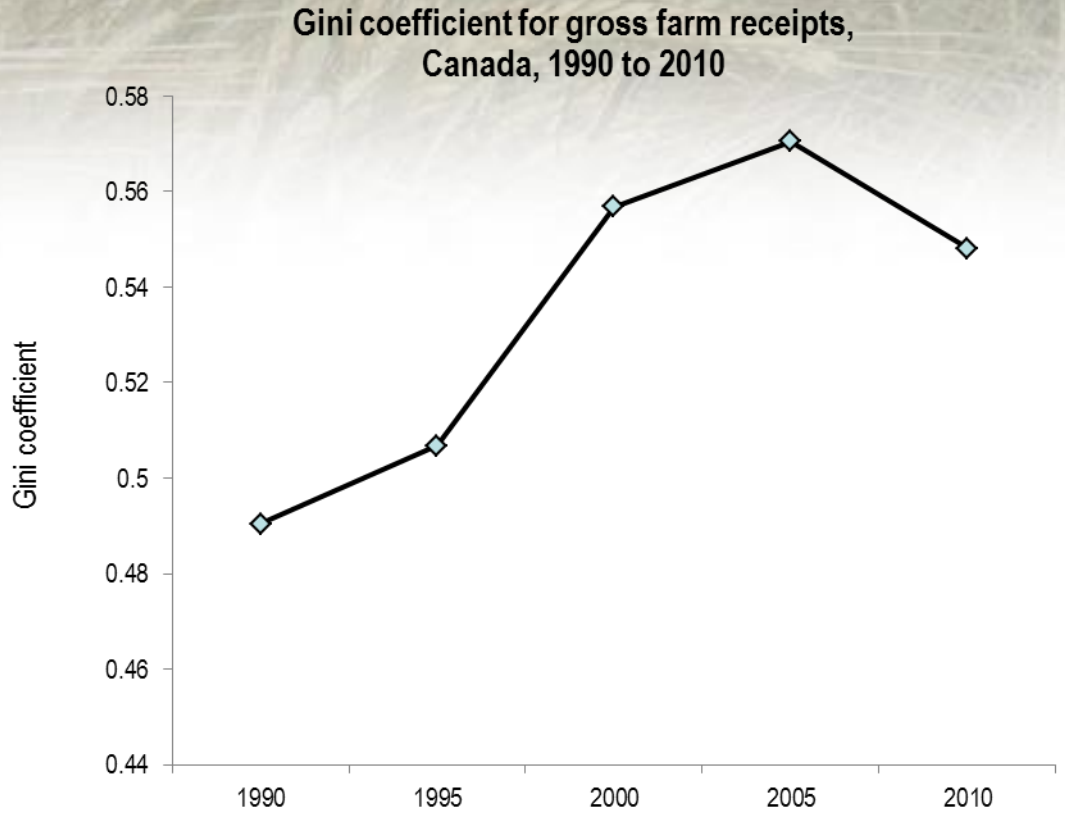
Source: Statistics Canada, Censuses of Agriculture 1991 to 2011.

Number and percentage of farms that generate more than 50% the total gross farm receipts, Canada, 1990 to 2010



Source: Statistics Canada, Censuses of Agriculture 1991 to 2011.

Gross farm receipts distribution is more inequal than the distribution of cropland



Source: Calculated based on Statistics Canada's Censuses of Agriculture 1991 to 2011.

Interpretation: Gini coefficient of:

- Zero would reflect a perfectly equal distribution of gross farm receipts among farms
- One would mean that all the gross farm receipts are generated by one farm.

Conclusions

- Relatively few farms operate most of cropland and generate most of gross farm revenues.
- Over the long term, inequality in the distribution of cropland and gross farm revenues tends to increase.
- Weighted medians allows to concisely communicate insights.

Next steps

Further analysis related to structural changes could be done by looking into:

- Regional trends
- Resource allocation in animal productions
- Drivers of farm consolidation in Canada



Canada