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## **Where's The End to Rising Tractor Prices?**

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# Where's The End To Rising Tractor Prices?

Robert Ellis, Department of Agricultural Economics



## Who Cares

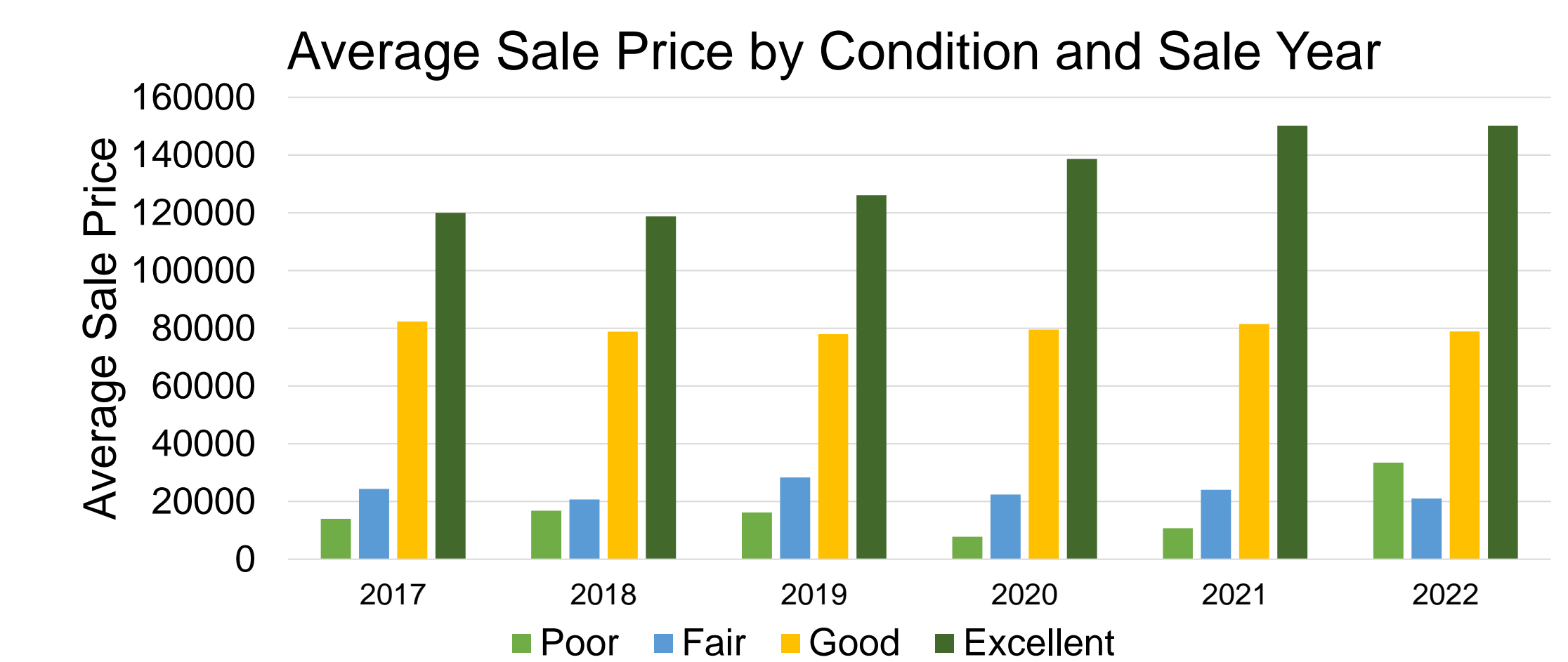
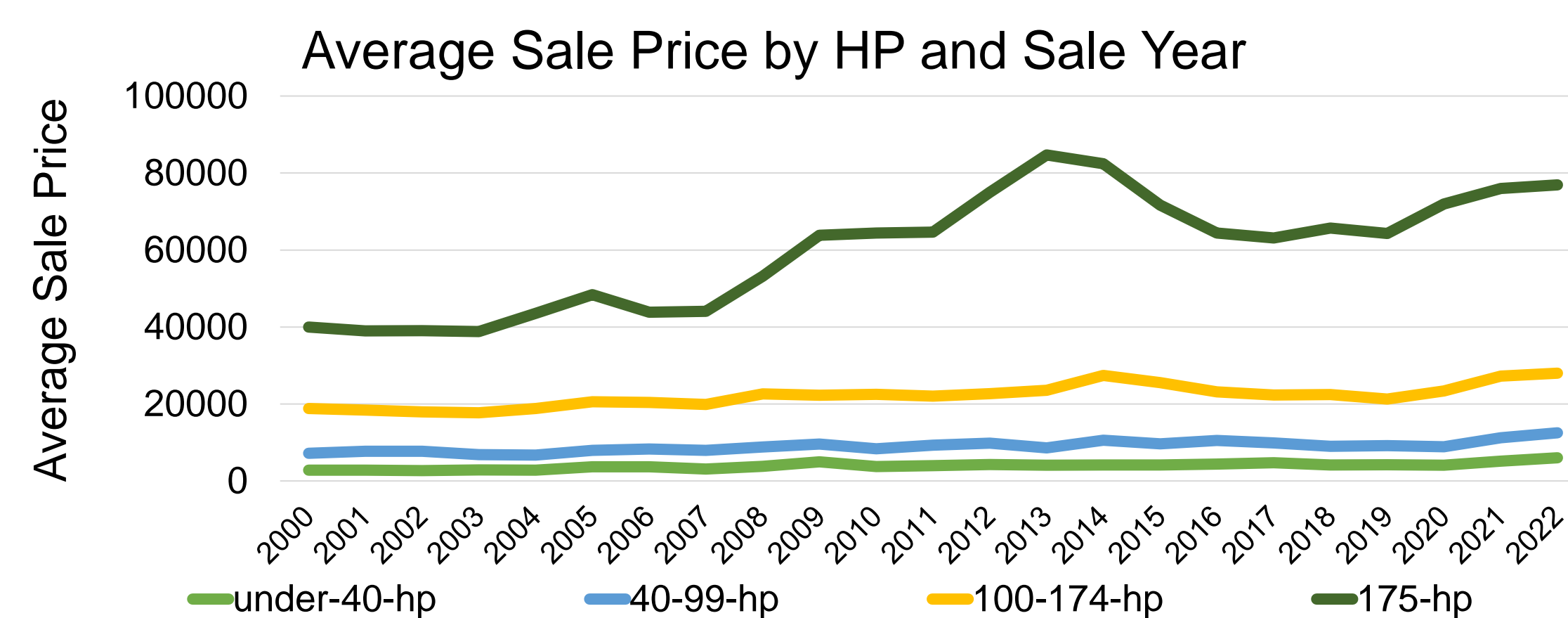
### Used Machinery Prices are on the rise

- 2019-2021 per-hour costs up between 2.1% and 19.4% (Lattz and Schnitkey, 2021)
- June 2021-June 2022 10% to 13% (Schmidt, 2023)
- Predicted increase for 2023 – 8.7% to 13.9% (Anderson, 2022)

### Machinery accounts for the second-largest asset group for crop farming operations

With expected decreases in future government payments, farmers will be more limited with asset purchasing.

### Farmers need a better outlook on tractor values.



## Objectives

1. Identify the key factors influencing the used tractor market by tractor horsepower pre and post-pandemic
2. Estimate the entire impact of the COVID-19 pandemic on the tractor market, and 3) evaluate the timing of impact changes around the pandemic shutdown dates

## DATA and Models

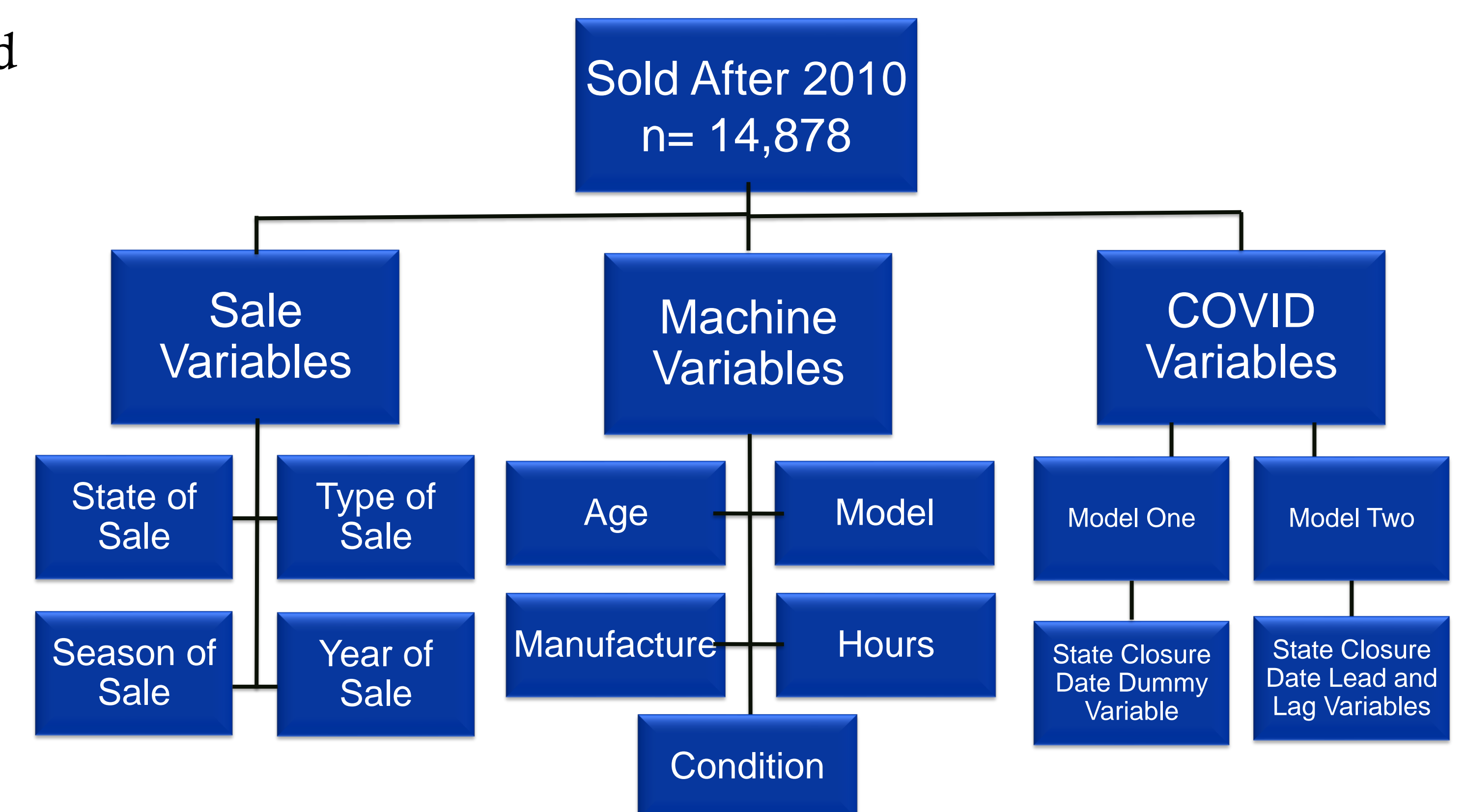
Secondary auction data from sales between 2010 and 2022 from one of the North American's largest machinery auction companies

Model 1)

$$\ln(P_{ild}) = \beta_0 + \beta_1 H_i + \beta_2 A_i + \beta_3 M_i + \beta_4 C_i + \beta_5 S_{ist} + \beta_6 COVID_{ild} + \rho_{il} + \tau_{id} + \varepsilon_{ild}$$

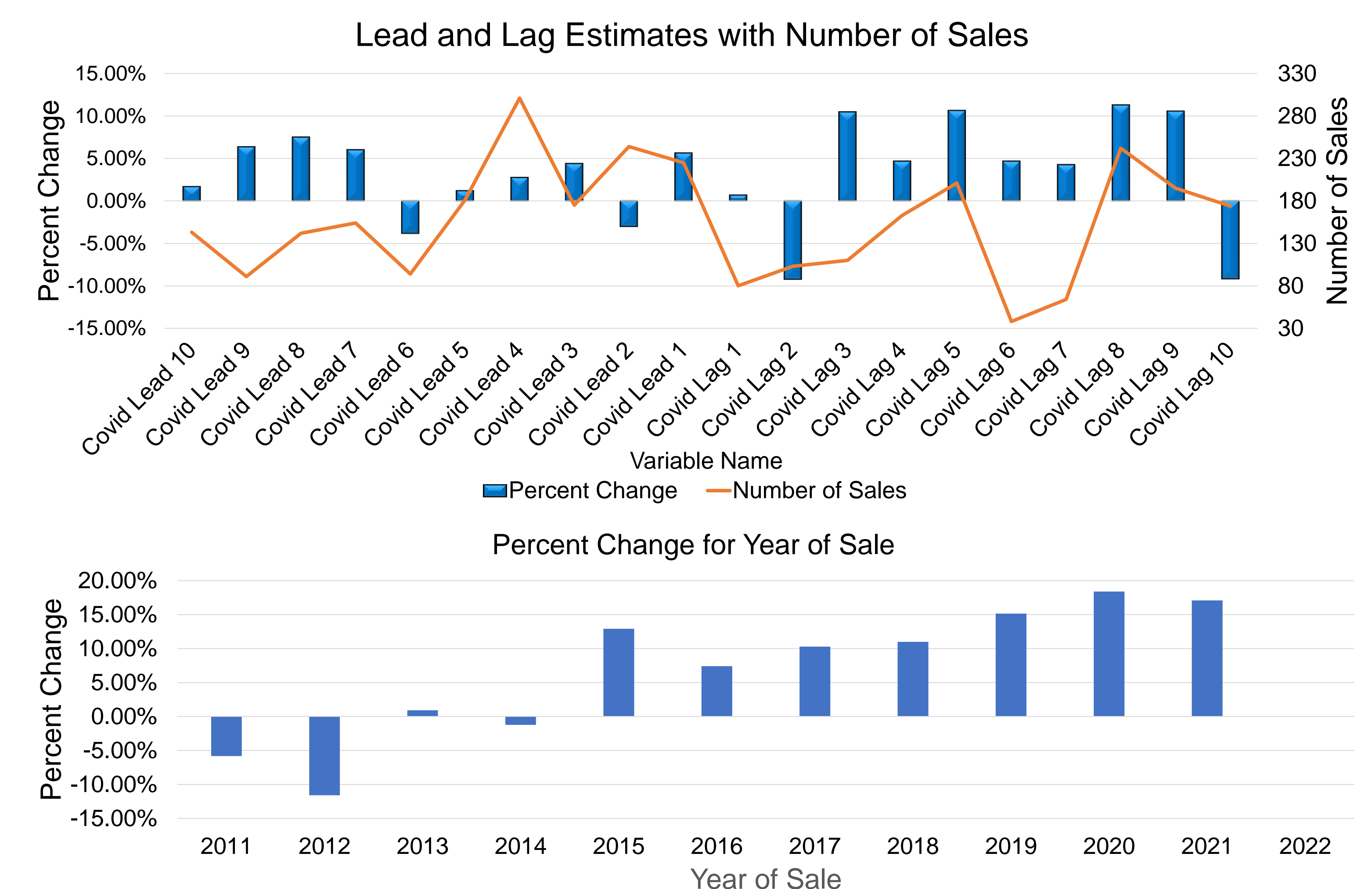
Model 2)

$$\ln(P_{ild}) = \beta_0 + \beta_1 H_i + \beta_2 A_i + \beta_3 M_i + \beta_4 C_i + \beta_5 S_{ist} + \beta_6 LeadLag_{ild} + \rho_{il} + \tau_{id} + \varepsilon_{ild}$$



## RESULTS

Variable	Percent Change
John Deere	47.40%
Case IH	27.80%
Ford New Holland	17.00%
AGCO	15.70%
Hours	-0.008%
Age	-4.3%
Good	-11.30%
Fair	-53.60%
Poor	-108.00%
Pre-Tier 4 Engine	3.70%
COVID	7.20%



## CONCLUSION

Manufacturer matters

Hours vs Age

Covid's overall impact through 2022 was 7% increase

Month to month Covid impacts ranged from -9% to 11%

## ACKNOWLEDGMENTS