

Trends in Key Grains for Informed Decision-Making

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Motivation and Background

- Agriculture plays a significant role in the global economy, serving as a cornerstone of economic stability(3).
- Farmers need to keep up with the **price**, **import**, and **export** trends of our four primary grains **Oats**, **Corn**, **Barley**, and **Sorghum**.
- Understanding the factors that contribute to grain price volatility is essential for developing effective interventions(4).
- Help farmers make informed decisions that enhance stability and productivity.
- In this analysis, we use the price fluctuation to examine import, exports, and the reasons for the fluctuation from 1989 to 2022 (1).

Objective:

- Spikes that happened with Price, Export, and Import of the grains
- Connections between them.

Methods

We used the U.S. department of agriculture Feed Grains database, where they keep track of different grains throughout the years. We specifically took out and looked at the yearly data of price, import, and export from 1989 to 2022 on oats, corn, barley, and sorghum(1).

Results



Figure 1. Change in Annual Price for Corn, Barley, Sorghum, and Oats

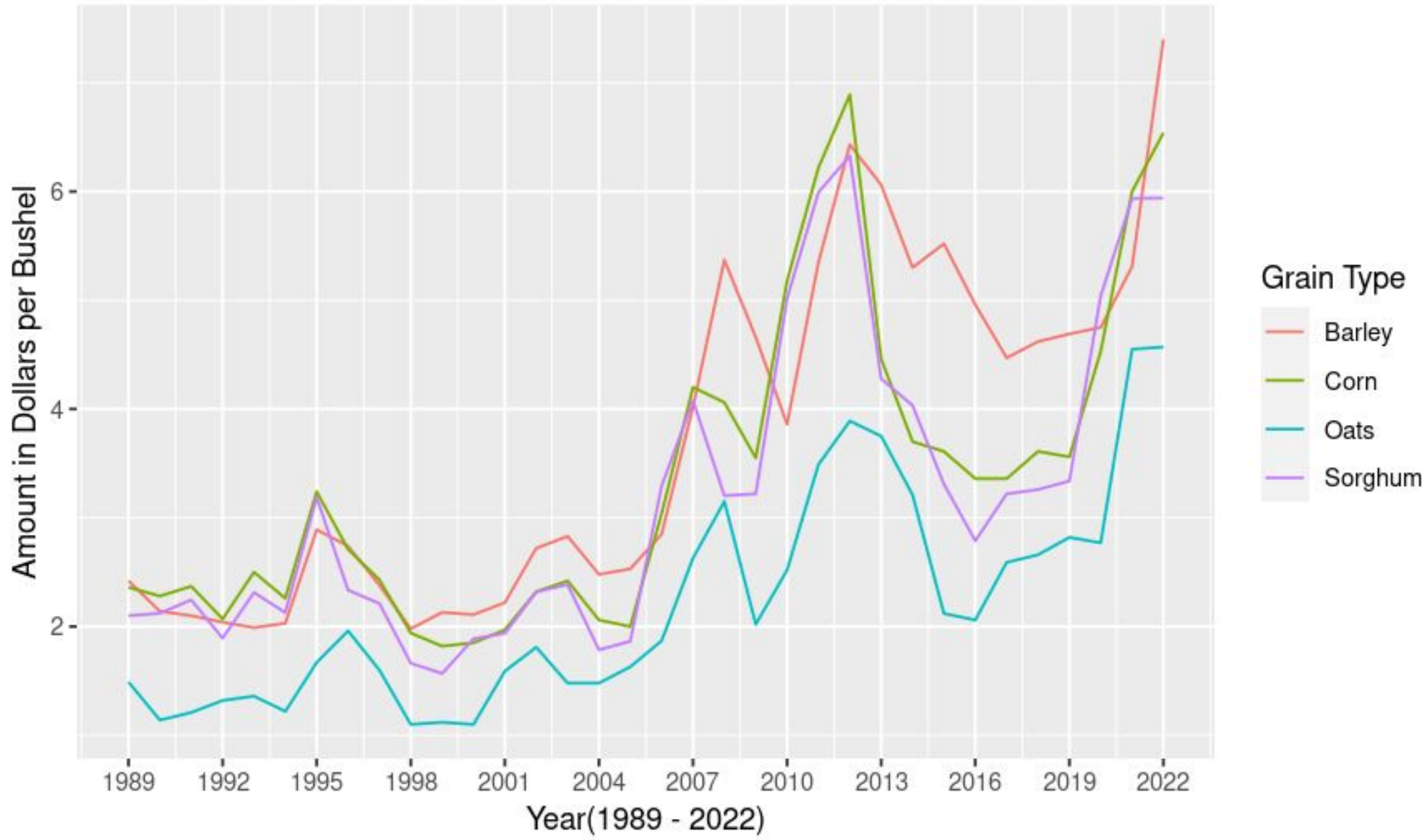


Table 1. Summary Statistics for the Annual Price Change for Corn, Barley, Sorghum, and Oats

Grains	Min	Q1	Median	Q3	Max	n
Corn	1.980	2.2600	2.8700	4.9075	7.400	34
Barley	1.820	2.2900	3.1400	3.9700	6.890	34
Oats	1.100	1.4800	1.9150	2.7425	4.570	34
Sorghum	1.568	2.1238	2.9876	3.8584	6.328	34

Figure 2. Change in Import Amount for Corn, Barley, Sorghum, and Oats

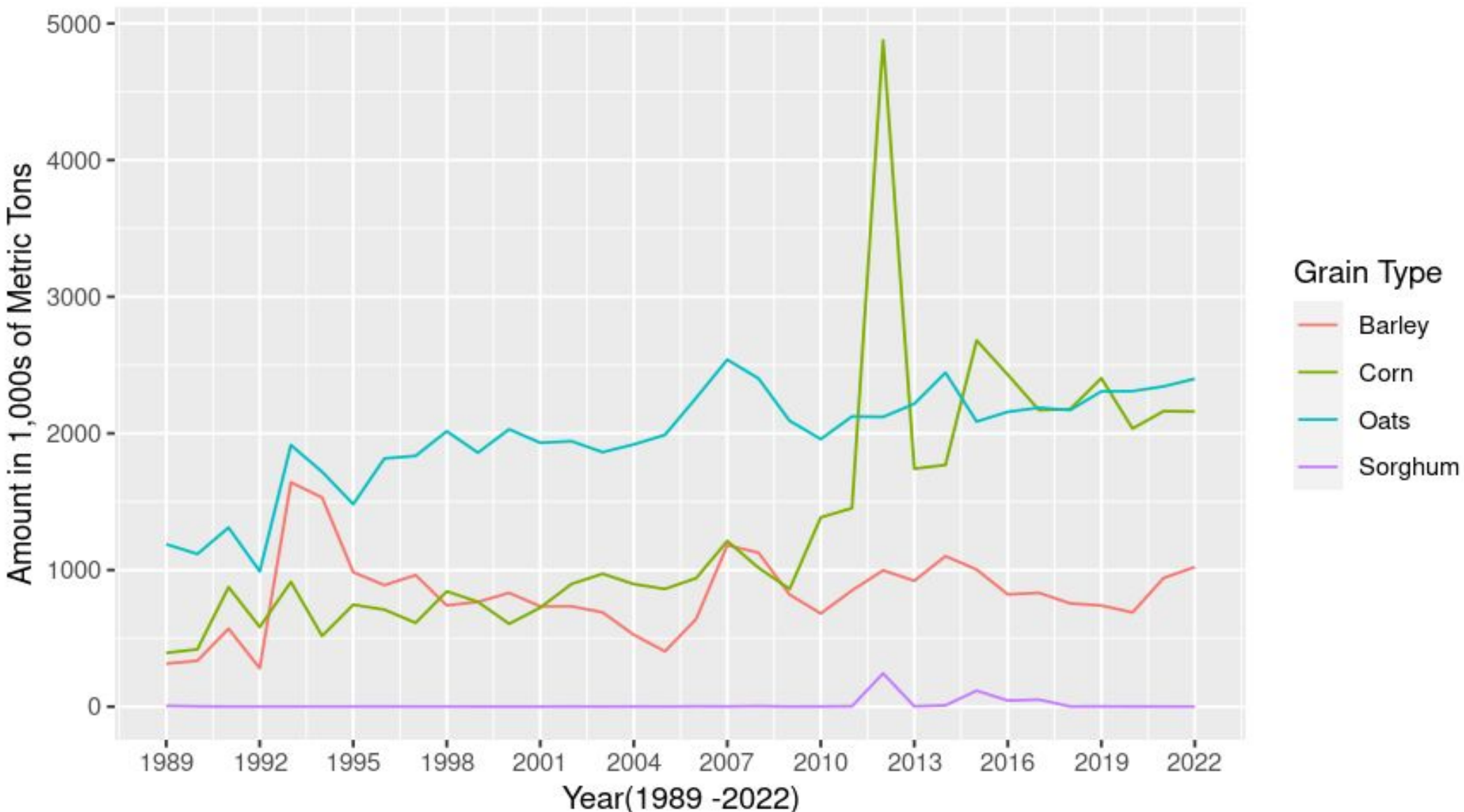


Table 2. Summary Statistics for the Annual Import Change for Corn, Barley, Sorghum, and Oats

Grains	Min	Q1	Median	Q3	Max	n
Barley	280.48	688.95	820.12	978.35	1641.04	34
Corn	393.100	750.78	926.18	1968.66	4875.07	34
Oats	989.68	1859.40	2022.41	2208.73	2538.96	34
Sorghum	0.005	0.201	2.988	0.692	2.189	34

Figure 3. Changes in Export Amount for Corn, Barley, Sorghum, and Oats from 1989 to 2022

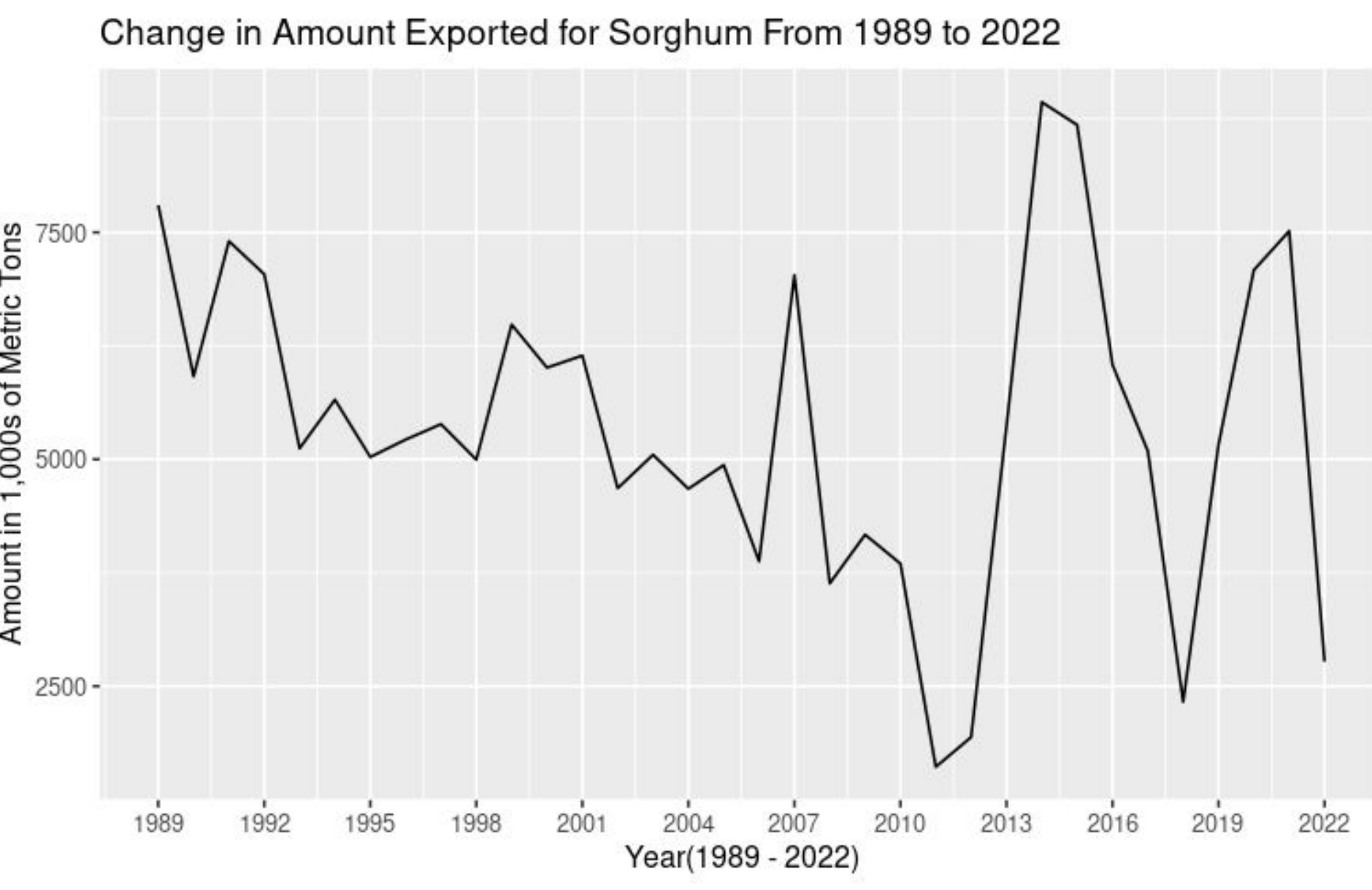
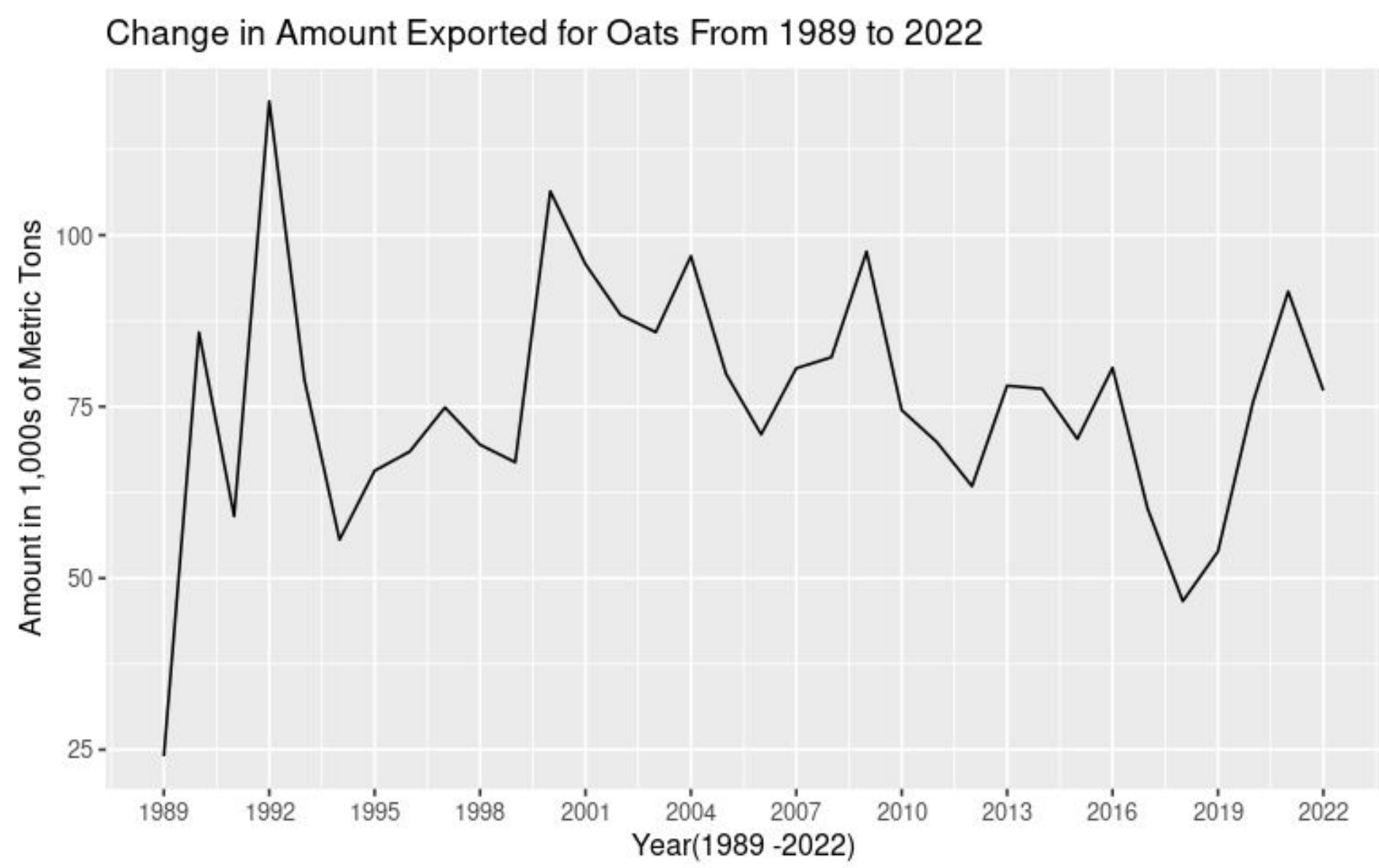
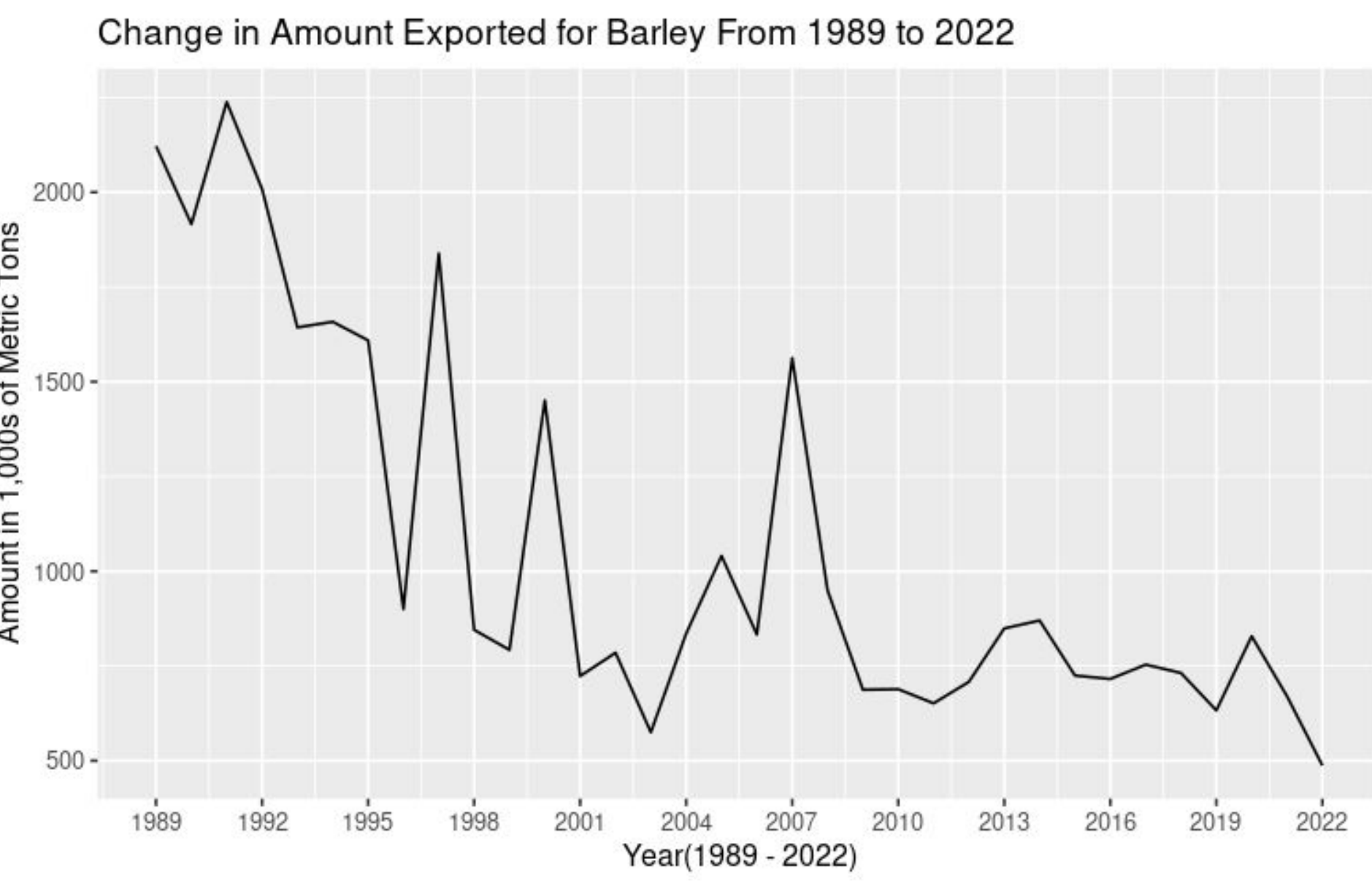
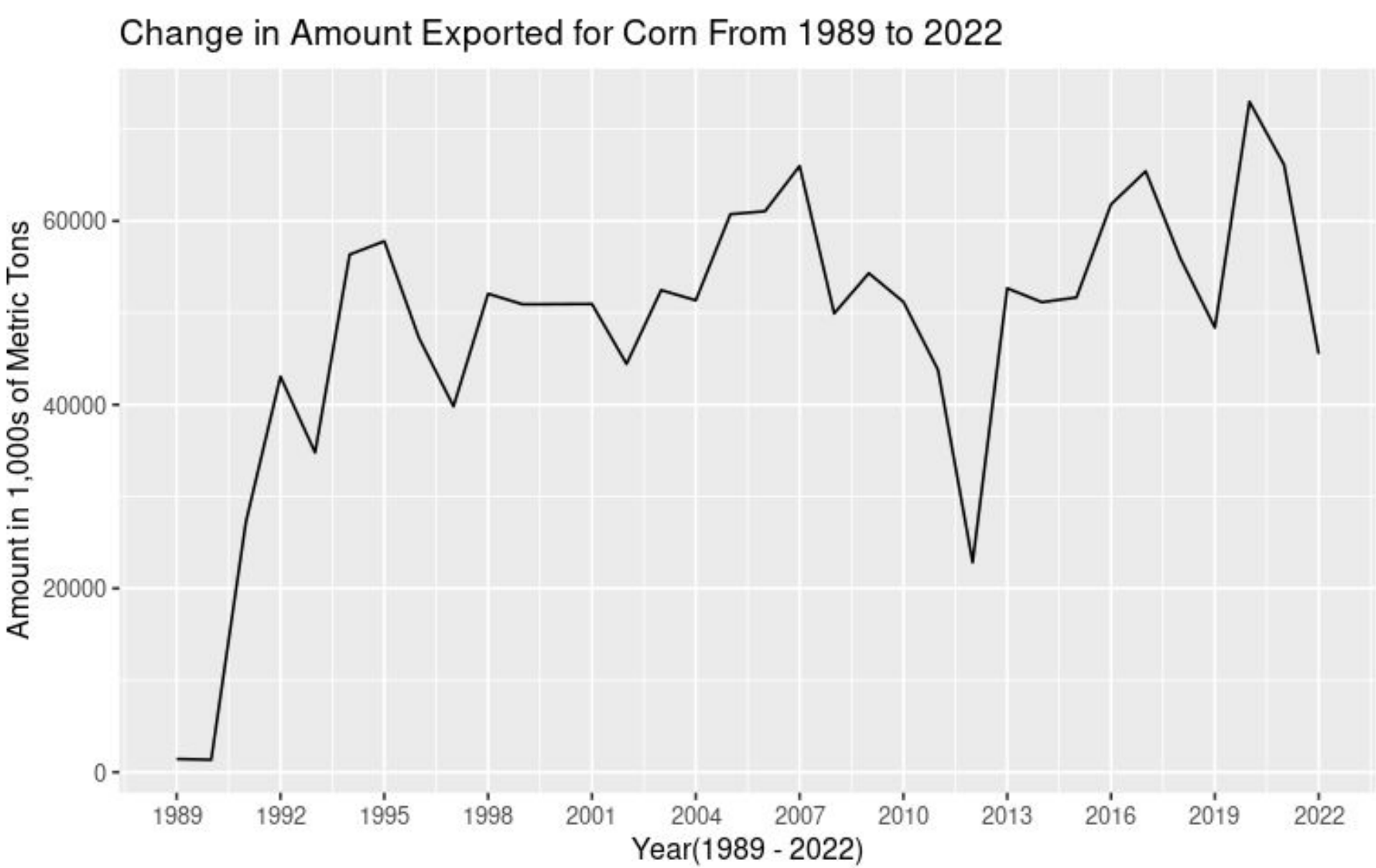


Table 3. Summary Statistics for the Annual Export Change for Corn, Barley, Sorghum, and Oats

Grains	Min	Q1	Median	Q3	Max	n
Barley	487.47	717.59	834.18	1,534.42	2,238.12	34
Corn	1,352.98	44,711.92	51,182	5,6252.49	72,977.23	34
Oats	24.05	67.28	76.52	84.91	119.49	34
Sorghum	1,610.69	4,676.52	5,189.37	6,398.54	8,934.74	34

Conclusion

- Around **1995**, a noticeable surge in prices affected all four grains.
- In **2005**, prices stabilized within a relatively steady range.
- After **2006**, a more volatile shift in prices for Oats, Corn, Barley, and Sorghum emerged. Attributed to the great recession and stayed high thanks to the aftermath.
- Around **2012**, another peak in prices surfaced across all four grains.
- Around **1995**, the amount imported only jumped for Oats and Barley.
- Around **2012**, Corn and Sorghum, particularly Corn, experienced a substantial surge in imports due to drought.
- This period also witnessed a notable decline in corn exports.
- Overall, The recurrent theme of price spikes, followed by subsequent drops in the years that follow, is mirrored in import and export.
- From this observation we believe the **anticipation** is that the substantial price spike **in 2022** may face a decline in the subsequent years for all four grains.

References

- (1) <https://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-yearbook-tables/>
- (2) <https://online.maryville.edu/blog/why-is-agriculture-important/>
- (3) <https://www.fao.org/3/i1059e/i1059e00.pdf>
- (4) <https://www.ers.usda.gov/publications/pub-details/?pubid=47277>