A Moderately Brief History of Farm Management: The Changing Language of Rural Property Professionals

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Acknowledgments

Appreciation for JSTOR maintaining open access archives of the *Journal of the ASFMRA* at https://www.jstor.org/journal/jasfmra and to the open-source community, especially the R Core Team and authors of contributed packages. To further the concept of open source, the data and code used for this analysis are available on the author's Github at https://github.com/spaceplowboy/JASFMRA2026. Running the script replicates the analysis and produces the same graphs included in this article. The hope is for others to learn more about programmatically accessing data to conduct their own analyses, then build upon results presented here.

Abstract

The Journal of the ASFMRA has a long history of sharing farm management ideas. A textual analysis of 1,752 articles evaluated language and authorship trends since 1937. Over time, fewer articles were sole-authored, and common title words shifted, reflecting evolving concerns of the profession. Single authorship declined from 80% prior to the 1970s to less than 40% after 1990. While "farm" remained the most frequent title word, the second most common term in the earlier decades, "appraisal," gave way to "farmland," and terms like "economics," "analysis," and "risk" only became common after the mid-1980s. Results are relevant to prospective authors and those interested in the rural property professions.

INTRODUCTION

The language we use reflects the challenges we face. For nearly a century, articles published by the *Journal of the American Society of Farm Managers and Rural Appraisers* (ASFMRA) have documented the evolution of farm management concerns, from WWII-era policy to the financial crisis of the 1980s to today's digitization of agriculture. The *Journal of the ASFMRA* (hereafter referred to as "the Journal") has been one of a very few publications of applied farm management that has continued providing authors with a peer-reviewed outlet. As a result, the membership of the ASFMRA has been endowed with a steady flow of innovative ideas to consider in their professional rural property practices. This mutually beneficial relationship has existed since 1937.

Textual analysis reveals shifting priorities of farm management over time. Building on Griffin and Gammon (2020), who analyzed 330 articles from 2000 to 2019, the current study evaluates a longer time series from 1937 to 2023 of 1,752 articles. In addition to reporting common title words and frequencies of authors and title length, the updated analysis incorporates a type/token ratio (W. Johnson, 1944) and sentiment analysis (Jockers, 2015). While Griffin and Gammon (2020) provided institutional characteristics of authors and emphasized differences between articles relative to the coveted Gold Quill recipients, the current work focuses on broader structural changes in authorship, title construction, and thematic content over eight complete decades using readily available metadata (JSTOR, 2025). Both studies share a commitment to open data, reproducible methods, and

accessible visualization of long-run publishing trends, providing a richer perspective on the evolution of farm management scholarship.

A past-as-prologue historical reflection provides a forward-looking perspective on farm management for the next century. By examining long-term trends, this analysis offers insights into the future of farm management and rural appraisal. To explore these trends, textual analysis techniques are applied to the Journal's article titles and author counts.

Understanding linguistic and structural shifts is not merely a historical curiosity, practical value for today's rural property professionals and prospective authors is provided. For practitioners, recognizing how the profession's language has evolved in response to agricultural crises, technological change, and policy shifts offers insight into emerging areas of expertise that may define the next generation of farm management challenges. For prospective authors, understanding current thematic trends and title construction norms can help position research to address these evolving priorities. By documenting how the Journal's content has tracked major agricultural transformations, from mechanization (Perkins, 1960) to digitalization (McFadden et al., 2023) and from post-war policy to the 1980s financial crisis (Zulauf et al. 2022), this analysis serves as both a retrospective and a compass for future research.

BACKGROUND AND LITERATURE REVIEW

Bibliometric studies of the agricultural economics literature provide useful context for evaluating authorship patterns, thematic evolution, and publication trends within the Journal. Onder and Yilmazkuday (2020) documented long-run shifts in economics publishing, most notably the decline of sole-authored articles and the rise of collaborative work, offering a benchmark for comparing authorship norms in applied farm management. Analyzing 35 years of peer-reviewed economics publications for patterns in co-authorship, they reported a steady reduction in sole-authored articles since 1980 while the proportion of two- and three-author articles increased. Once peaking in the late 1990s, two-author articles remained relatively stable at nearly half of all publications. A measurable proportion of articles with more than three authors appeared after 2000 and became 10% of the literature by 2005 (Onder and Yilmazkuday 2020).

Similar approaches have been applied to agricultural literature. Methodological contributions by Gauffriau (2021) clarified how authorship and publication metrics should be interpreted. A bibliometric review of digital agriculture by Bertoglio et al. (2021) highlights the rapid emergence of new themes in applied agricultural sciences, a pattern that may parallel evolving subject matter in the long publication history of the Journal.

This analysis applies text-as-data methods following the framework established by Gentzkow et al. (2019), who provided a comprehensive review of textual analysis methods in economics. Their approach has become standard practice across disciplines, including the recommendation to focus on single words to validate results through multiple complementary methods rather than relying on a single technique. Collectively, these studies provide the foundation for applying bibliometric and textual-analytic techniques to assess publication trends, authorship patterns, and thematic evolution across ASFMRA's history.

DATA AND METHODS

Data wrangling began with structured metadata from JSTOR (JSTOR, 2025). Following standard text-as-data preprocessing practices (Gentzkow et al., 2019; Silge and Robinson, 2016), author fields were normalized and titles were cleaned by removal of punctuation, prepositions, and filler words. Stemming procedures standardized related terms (e.g., "manage," "manager," "managing" → "management"), and semantic grouping combined variants with shared meaning (e.g., "farmers," "producers," "growers" → "farmer") that preserve semantic content while ensuring comparability across decades (Gentzkow et al., 2019).

The cleaned dataframe was expanded into word- and author-level structures, with titles tokenized into component words for frequency analysis (Jockers and Thalken, 2020). Author lists were unnested to facilitate longitudinal analyses of collaboration trends, with derived variables including co-author and title word counts per article. Word usage dynamics were evaluated across years with lexical dispersion analysis (Phillips, 2008) and measures of vocabulary richness such as type/token ratio (TTR). These procedures provide a multifaceted assessment of the Journal's evolution in article content, authorship structure, and linguistic style over time.

In addition to descriptive statistics and lexical analysis, the structural change analysis (Zeileis et al., 2003) of authorship and title characteristics were evaluated. Breakpoints were estimated for the proportion of

sole-author versus multiple-author articles and average number of title words. Breakpoints identified candidate years when significant shifts occur, segmenting the data into pre-, post-, and transitional phases enabling direct comparison of publication practices across eras.

Data were analyzed using textual analysis procedures (Kosnik, 2015; Jockers and Thalken, 2020; Silge and Robinson, 2016) with the R statistical environment (R Core Team, 2025). The data and R script are publicly available for rural property professionals and other researchers to perform their own evaluations.

ANALYSIS AND RESULTS

Since 1937 the Journal has published 1,752 articles. The most articles published in one year were 37 in 1956 while the least was 7 in 2022. On average, the Journal publishes more than 20 articles per year with a downward trend over time (Figure 1).

After the inaugural year, the total number of authors contributing each year varied from 15 in 1954 to 71 in 2010 (Figure 1). The most authors on a single article were 25, however sole authorship remains the most common followed by two, then three authors. Visual assessment of the number of articles versus authors indicates a recent trend of fewer articles with increasing number of authors over time (Figure 1), thus authors per article has been increasing. The number of authors per article and the prevalence of sole- versus multiple-author contributions are plotted over time (Figure 2); tests for structural breaks detected significant shifts in authorship patterns at various historical cutoffs. The proportion of sole- and multiple-author articles had significant breaks in 1972 and 1993, as prior to the early 1970s, most articles were penned by sole authors. After the 1980s, the proportion of multiple-author articles mirrored the trend set by sole authors during the first half of the time series. Increased proportion of multiple authors may be an artifact of the "publish or perish" pressure put on academics, may represent increasingly complex multi-state funding projects, or may mirror newer interdisciplinary approaches to risk management that are consistent with the findings of Onder and Yilmazkuday (2020).

The most common title length was four tokenized words followed by five then three (Figure 3). The longest title had 16 words, while the shortest titles had one tokenized word. It should be noted that the Journal guidelines restrict titles to be no longer than 10 words.

Significant structural breaks in the number of title words occurred in 1970 and 2005. Before 1970, the average title length was 6.5 words. Title wordiness increased to 9.2 between 1970 and 2005 and has remained 9.5 since 2005, although visual inspection indicated downward trend over the last decade (Figure 4). These breaks align with interdisciplinary research trends, emphasizing the evolving complexity of rural property practices.

Title words were then subjected to frequency analyses across the entire database by decade. The five most common title words tended to dominate the others that had less pronounced differences further down the list (Figure 5). The most common word across all article titles was "farm," and it remains the most common title word each decade. The words "agriculture," "appraisal," "farmland," and "management" are also in the top five most common token title words.

In addition to examining the entire dataframe as a whole, each decade was evaluated separately to capture transient themes over time exposing additional trends. The second most common word was "appraisal" during the 1940s, 1950s, and 1960s, then "farmland" in the 1970s, 1980s, and 2010s, and "economic" in the 1990s and "analysis" in the 2000s (Figure 6). The word "tax" only appeared as a most common word in the 1980s, the decade when "economics" first appeared as a top three most common title word. The word "risk" only appeared since the 1990s. During the 1970s, the word "analysis" first appeared albeit at the bottom of the list but remains as a top five word since the 1980s.

The dispersion of the most common title words is presented in Figure 7 and sorted such that the most common word, "farm," is at the top. Frequently used words such as "analysis," "finance," and "risk" were not common prior to the 1980s but became more common in recent years. The rise of words such as "finance" and "risk" during the late 1970s temporally aligns with the rapid increase in farmland values (Schurle et al., 2012; Alston, 1986). The word "rural" was common up through the 1970s, then diminished during the 1980s. The word "crop" became more common as farms became less diversified during the early 1960s (Boehlje and Trede, 1977; Hijmans et al., 2016).

The frequency of individual words provides actionable insights into topic categories, but the next section elaborates on the underlying sentiment of title words. Jockers and Thalken (2020) define sentiment as the degree that text evokes positive or negative emotions.

The average annual sentiment was calculated from title words as values greater than zero indicating more "positive" language and negative values suggesting more "negative" language (Jockers, 2015; Jockers and Thalken, 2020). Values near zero are considered neutral or potentially mixed sentiment. For the most part, title words were deemed positive with a downward trend becoming more neutral over time. Sentiment peaked prior to WWII, then had lows during WWII, the late 1970s, the late 1980s, and recently (Figure 8). Post-war uncertainty (Halderman, 1943; S. E. Johnson, 1944), the transition from animal power to mechanization (Perkins, 1960), and rapid farm consolidation (Blase and Hesemann, 1973) likely influenced metrics in the 1940s and 1950s. Retiring farmland and increased reliance on debt from the 1950s through the 1970s (Hanson and Thompson, 1980) may have been a source of lower sentiment toward the end of the decade. The low sentiment scores during the 1980s were likely associated with the farm financial crisis (Drabenstott and Duncan, 1985), but the lingering debt effects continued to influence farm management research during the late 1980s. Alternative to the low sentiment, periods of positive sentiment during the 1990s likely were associated with reduced debt relative to the prior decade. Farm incomes had increased in part due to NAFTA (Fonsah and Hudgins, 2007) and stabilized via farm program subsidies (Wright et al., 2018; Zulauf et al., 2022).

Trends in vocabulary complexity were evaluated by TTR. When TTR was close to 1, most title words were unique, indicating a high lexical diversity; when TTR was closer to 0, title words tended to be repeated and have less diversity. Ratios tended to be greater than 0.6 and increasing over time and consistently greater than 0.7 since the 1960s before peaking in 2017 (Figure 9). It should be noted that lexical analysis was applied across all titles and thus all authors each year such that the metric is not a measure of individual complexity but rather representative of the cohort of authors.

During the time series evaluated by this study, many agricultural innovations were introduced. Hybridization of corn dramatically increased yields relative to open-pollinated varieties, and nitrogen fertilizers became available after WWII (Klemme, 1951). Crop protection chemicals including herbicides and pesticides transformed weed and pest management (Govindasamy and Italia, 1998), reducing labor costs and allowing larger-acreage cropping operations. Farms transitioned from animal power to mechanization (Perkins, 1960), then more specialization replaced diversification (Mayer, 1961), further enabling farm consolidation. Irrigation (Wade et al., 1981) and conservation efforts (Hanson and Thompson, 1980) became standard practices in many locations. Precision farming (Popp et al., 2002), digital agriculture (Boehlje and Langemeier, 2022), and Big Data (Griffin et al., 2016) developed because of global navigation satellite systems becoming available for civilians. Many, if not most, of these innovations led to fewer but larger acreage farm operations thus increasing absentee landownership, in part, driving the necessity for rural property professionals (Griffin and Baird IV, 2010). When the first issue of the Journal was released, the internet, personal computers, wireless connectivity, satellites, and automated guidance were several decades from reality. Results presented here may help motivate university curriculum and textbook topics for the next generation. Policymakers can assess what topics matter most to practitioners over time.

SUMMARY

Building on the trends identified above, this study highlights the Journal's evolving language and its implications for rural property professionals. Textual analysis methods quantified what authors have emphasized and how the language of the Journal reflects changing farm management concerns. Spikes in lexical diversity likely correspond to new technologies or shifts in policy. Topic modeling revealed when issues like risk management and taxes became central. Shifts in title words, such as the decline in "rural" and rise of "risk," signal evolving priorities. This history can help guide the future of farm management research and practice. This textual analysis of 1,752 articles spanning 87 years reveals three fundamental shifts in the Journal's evolution that carry implications for rural property professionals and future research directions.

First, authorship patterns mirror broader trends in agricultural complexity. Single authorship declined from 80% before 1970 to less than 40% after 1990, with structural breaks identified in 1972 and 1993. This shift reflects increasingly interdisciplinary approaches to farm management challenges and aligns with collaboration trends documented across the economics literature.

Second, the language of farm management has evolved from broad management concepts to specialized technical focus. While "farm" remained the dominant title word, "appraisal" as the second most common term gave way to "farmland" after the 1980s. Terms like "economics," "analysis," "risk," and "finance" only became prominent after the mid-1980s farm financial crisis, with vocabulary complexity steadily increasing through 2017. These shifts signal the

profession's evolution toward quantitative, risk-focused decision frameworks.

Third, sentiment analysis reveals that title language tracks agricultural crises and policy transitions. Sentiment lows during WWII, the late 1970s farmland boom, the 1980s financial crisis, and recent periods correspond to documented periods of agricultural stress, while peaks in the 1990s align with NAFTA-era optimism and expectations of income stability.

For prospective authors, these trends suggest that successful submissions increasingly emphasize specialized production topics, quantitative analysis, and risk management frameworks. For practitioners, the evolution from "management" to "production" and the rise of "economics" and "analysis" reflects the profession's response to larger-scale operations, increased financial complexity, and data-driven decision-making. The next generation of farm management research will likely continue this trajectory, building upon digital agriculture and evolving land tenure arrangements that have driven demand for rural property professionals since the Journal's inception.

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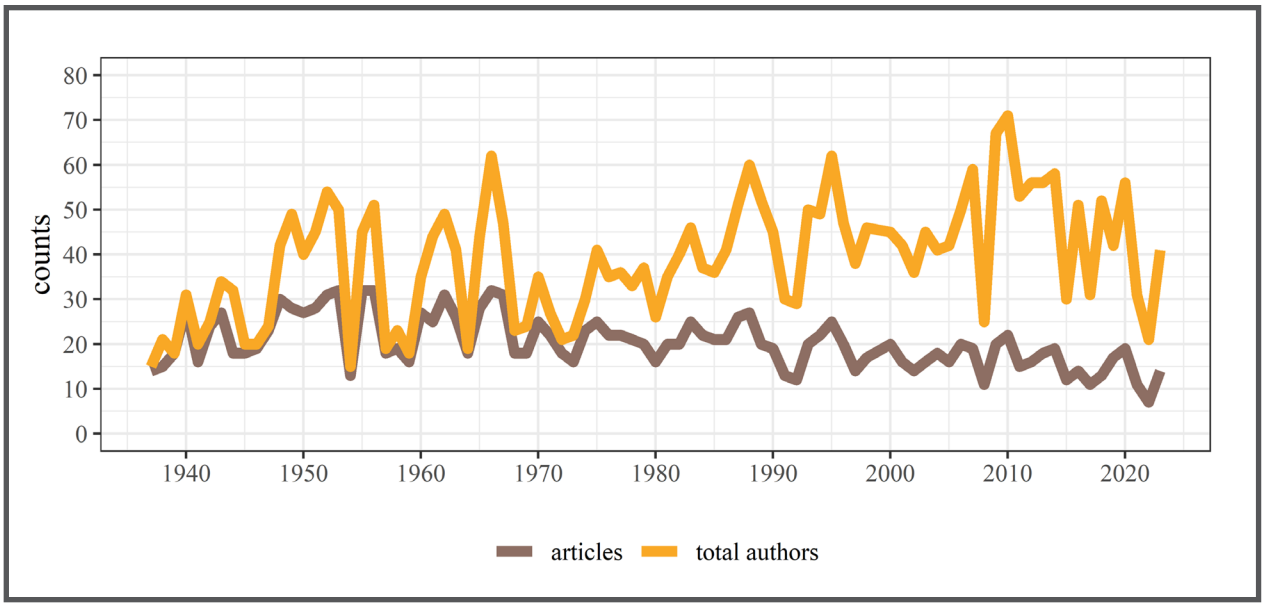

Figure 1. Annual articles published and number of authors

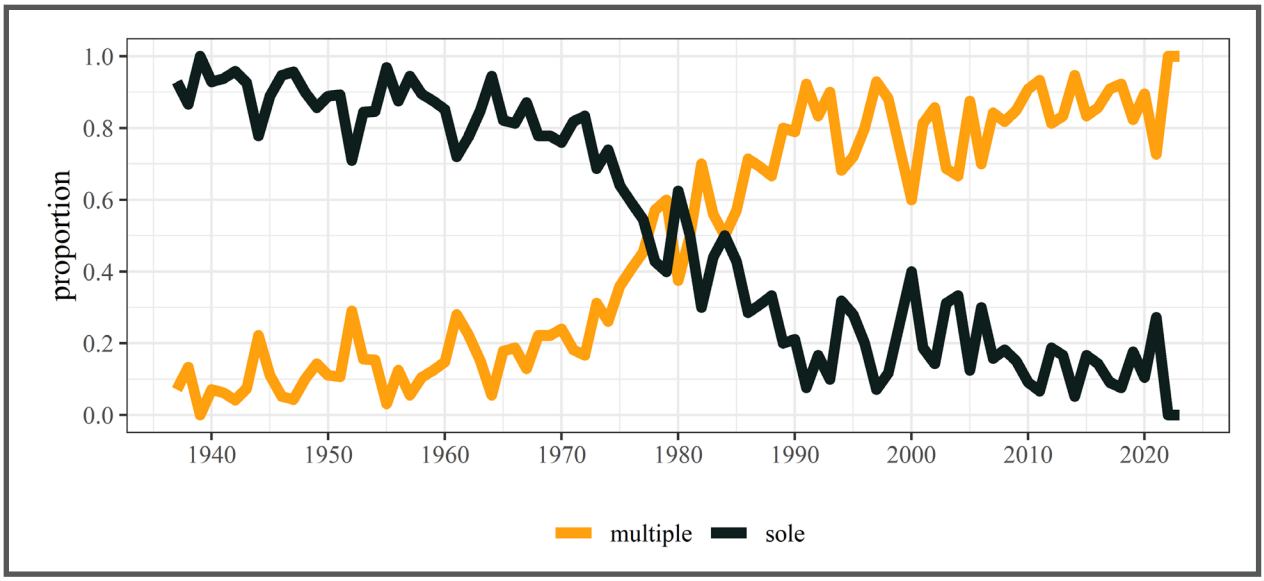

Figure 2. Proportion of sole and multiple-author articles

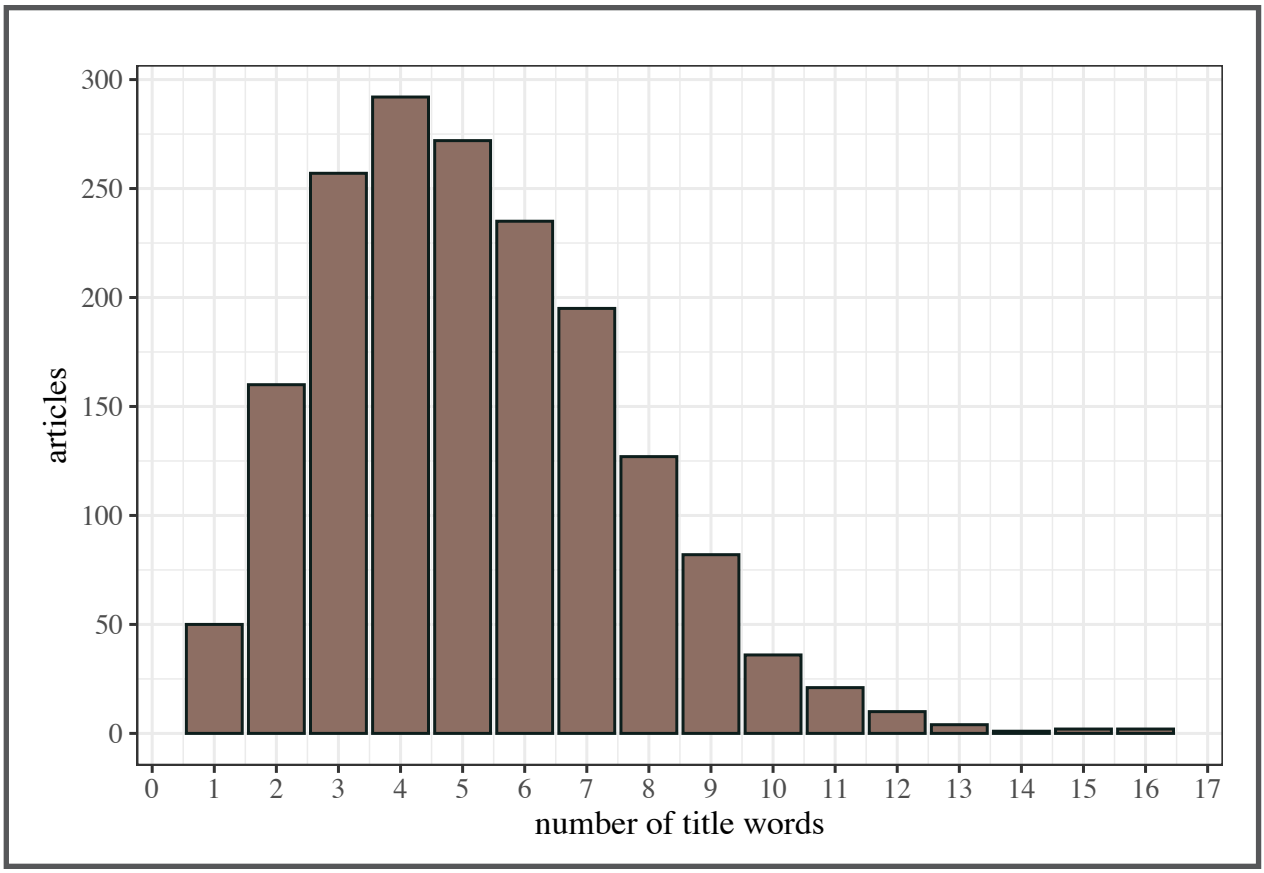

Figure 3. Number of title words per article, 1937 to present

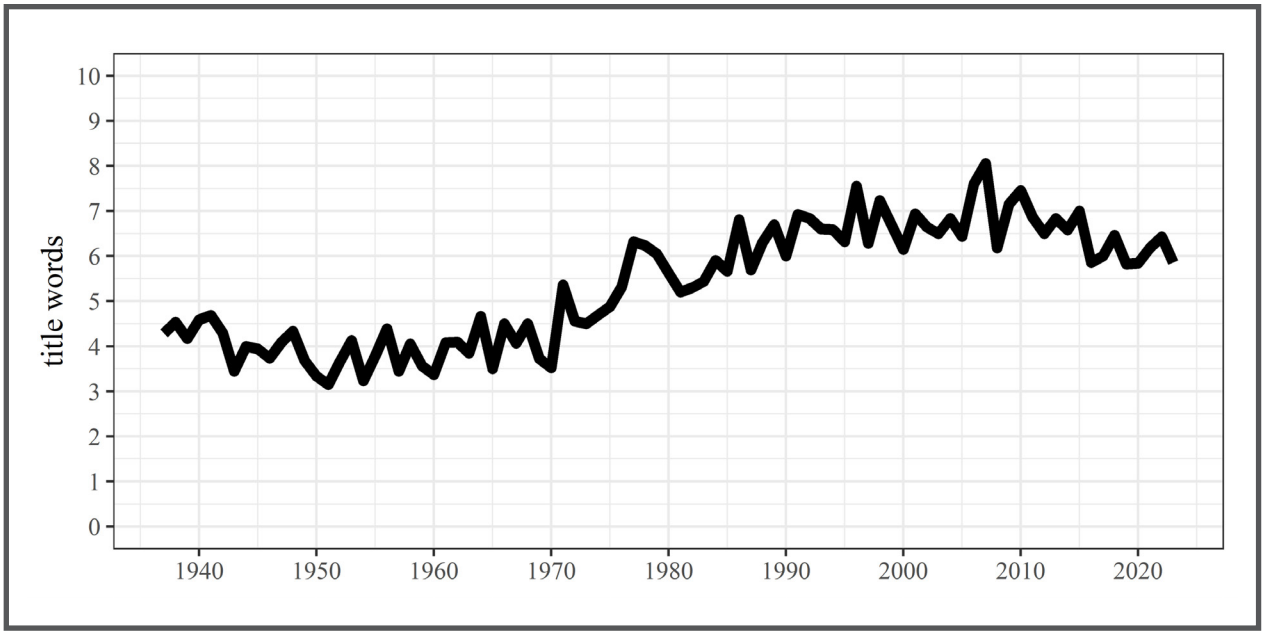

Figure 4. Average number of title words per article

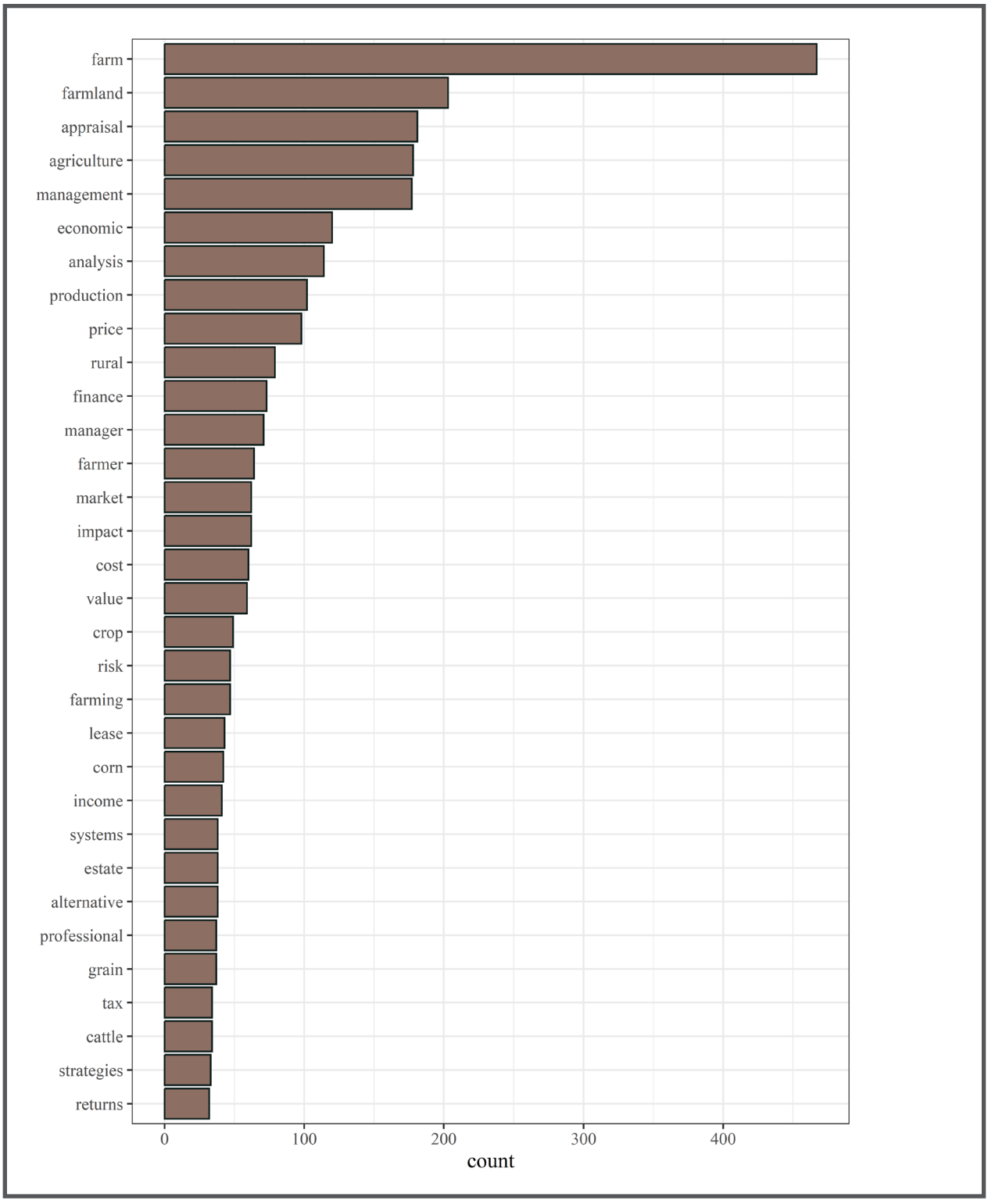

Figure 5. Most common title words, 1937 to 2023

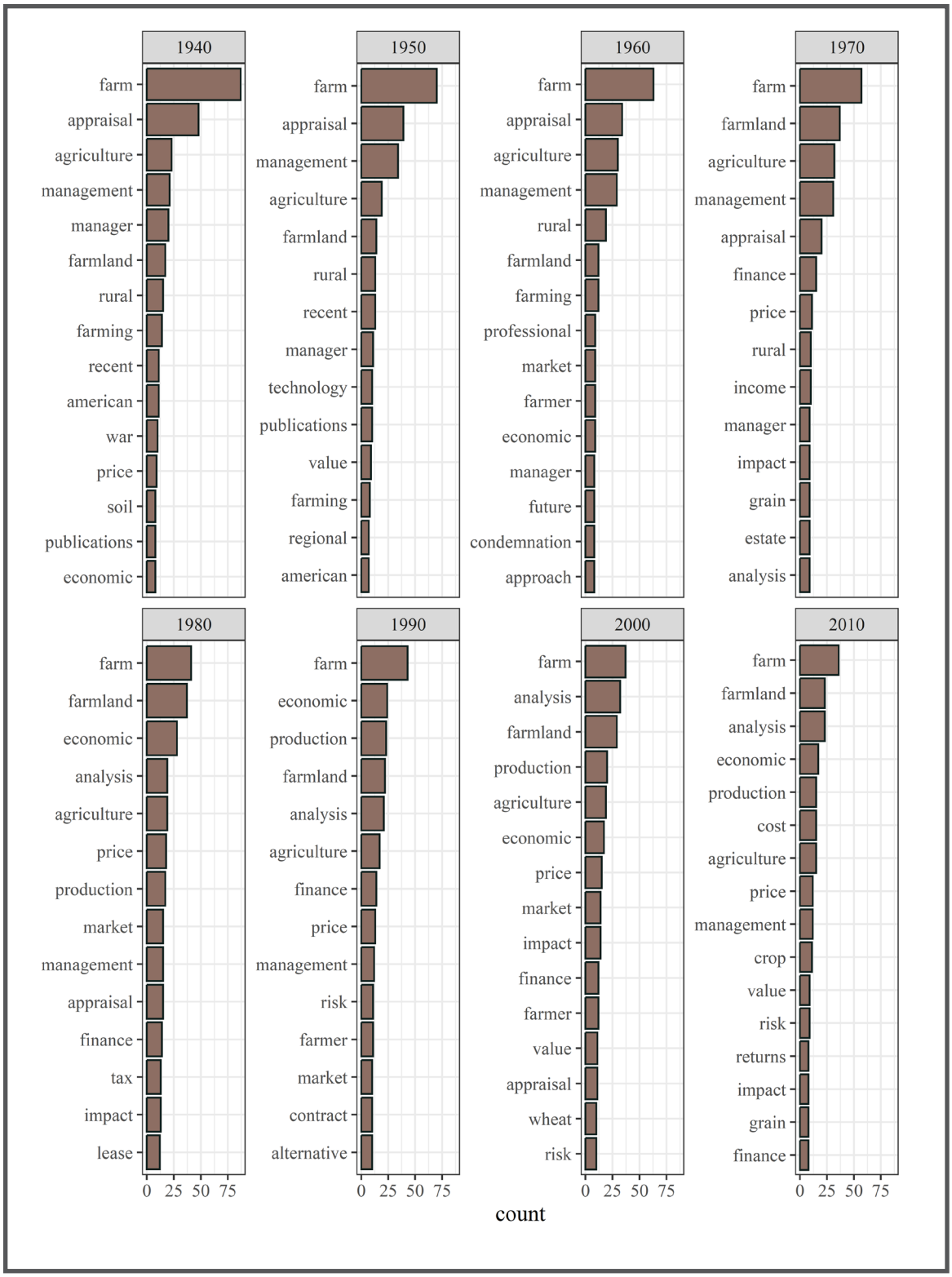

Figure 6. Most common title words by decade

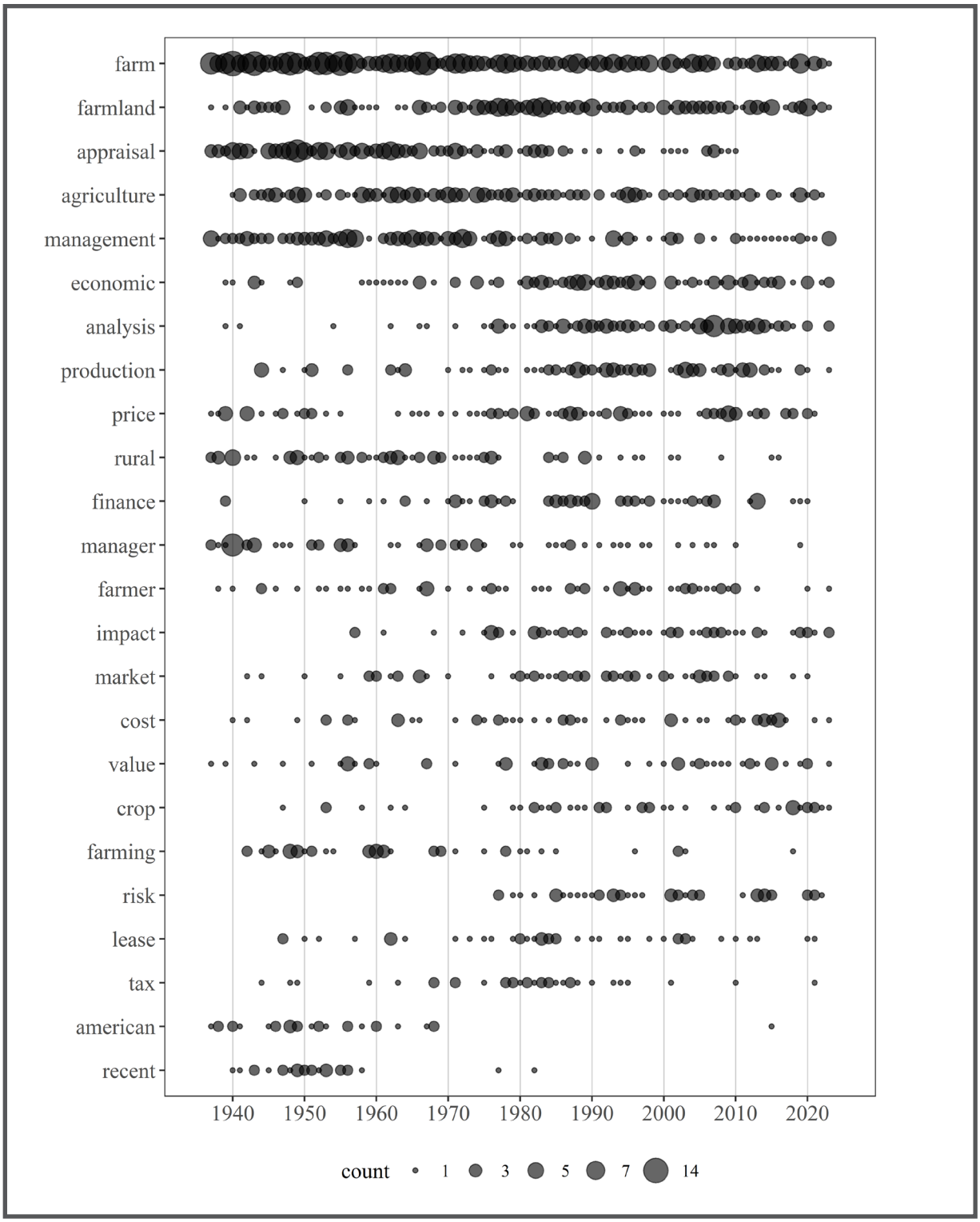

Figure 7. Dispersion of most common title words

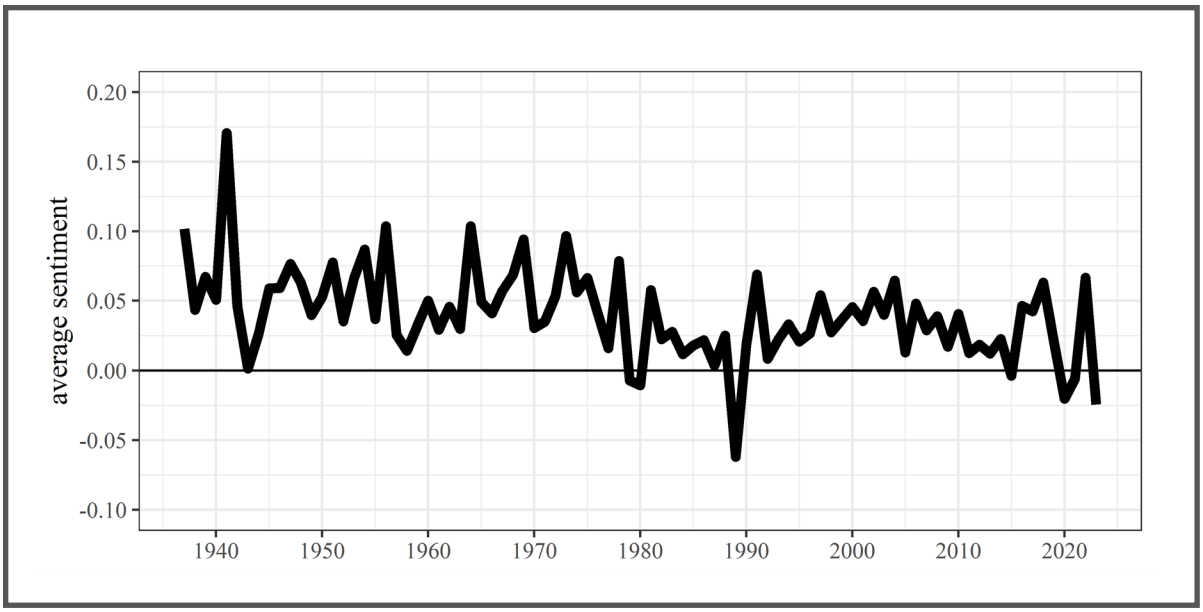

Figure 8. Title word sentiment

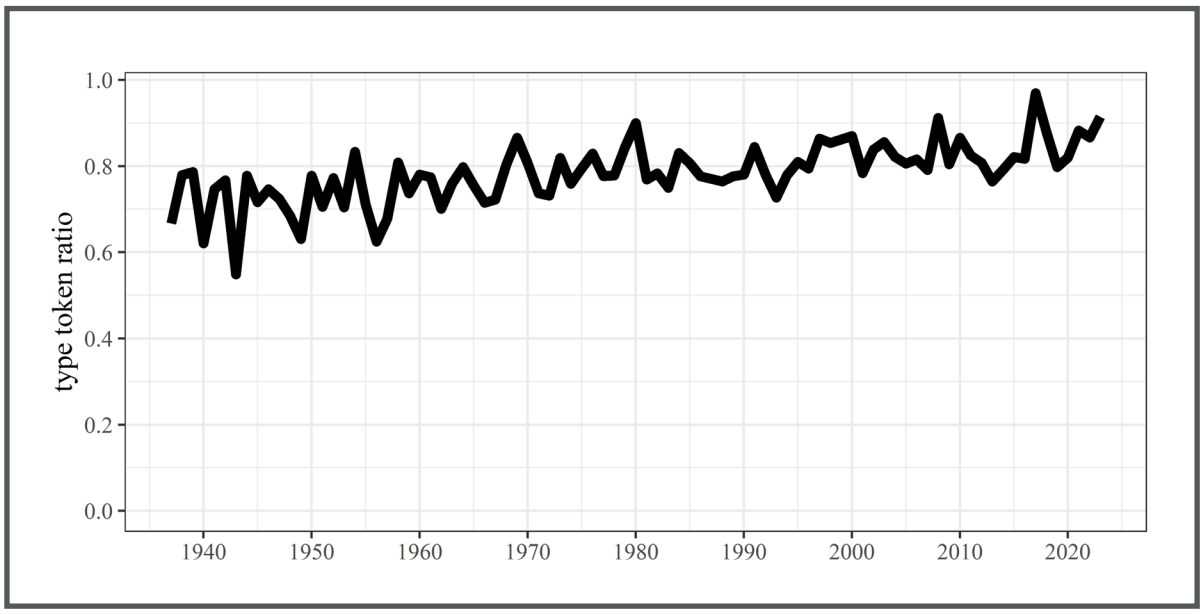

Figure 9. Complexity of title word vocabulary