| **RESEARCH ARTICLE**

A Corpus-Based Study of Thematic Choices and Thematic Progression Patterns in Research Article Abstracts across Sub-domains of Economics

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| **ABSTRACT**

A research article (RA) abstract provides an overview or summary of the whole research. It is one of the most important sections in an RA since it is the first section researchers read to decide if the article is relevant to their research or not. Researchers need to know the intradisciplinary (within the same discipline) variations and similarities in the choice of Theme and thematic progression (TP) patterns in RA abstracts in their discipline. Several studies have investigated variations and similarities in the use of Theme across disciplines. However, there is a lack of studies investigating intradisciplinary variations in the use of Theme in RA abstracts of economics subdisciplines. As epistemological differences exist between the various economics subdisciplines, it is pertinent to examine if there are intradisciplinary variations in the construction of Theme in the subfields of economics. The present study aims to investigate if there are any intradisciplinary variations and similarities in the use of Theme and TP patterns across seven economics subdisciplines: macroeconomics, microeconomics, econometrics, development economics, financial economics, labor economics, and international economics. The study is framed by Halliday's systemic functional linguistics' approach to language and Daneš's model for TP patterns. The findings revealed intradisciplinary significant differences between the subfields of economics in terms of the use of Theme types at $p < .05$ (p-value=0.0294), while there were no significant differences in the use of TP patterns and thematic markedness. Various interesting linguistic features characterizing the subdisciplines were found, although no significant interdisciplinary differences were found between economics RA abstracts and the findings reported in the literature of other disciplines. Finally, implications for novice economics researchers attempting to write an RA abstract are presented.

| **KEYWORDS**

Research article (RA) abstract, Theme choice, thematic progression patterns, economics subdiscipline

1. Introduction

Analysis of the thematic organization of discourse reveals the way texts are created and organized coherently, thereby facilitating the smooth readability of texts. The application of this analysis to the research article (RA) abstract is necessary since the findings may provide invaluable insights for writers of an RA abstract. Since the abstract summarizes the whole RA, it is the first section researchers read to decide whether or not to read the rest of the RA.

Whereas few studies investigated thematic choices and thematic progression (TP) patterns in RA abstracts of one discipline (Lorés, 2004; Nwogu & Bloor, 1991), others conducted interdisciplinary (across disciplines) studies of variations and similarities in the thematic organization of RA abstracts across a range of disciplines (Alotaibi, 2020; Ebrahimi, 2016; Ebrahimi & Khedri, 2011; Leong, 2016).The study of Theme in economics' RA abstracts does not appear to have attracted this kind of research. Moreover, as epistemological frameworks (or analytical priorities) vary distinctly across economic subdisciplines, it becomes crucial to examine whether intra-disciplinary variations exist in the deployment of thematic progression patterns within research article abstracts of distinct economic domains. For instance, while macroeconomics focuses on aggregate phenomena such as GDP growth,

unemployment rates, monetary policy, fiscal regulation, and international trade dynamics (Mankiw, 2015:412), The subfield of econometrics emphasizes regression analysis, hypothesis testing, econometric models, panel data analysis, and causal inference (Kahneman & Tversky, 1979:113). Similarly, development economics prioritizes poverty alleviation institutional capacity building, human capital investment, and structural transformation metrics (Sen, 1999:78), contrasting with financial economics' emphasis on asset pricing models, portfolio optimization theories, market microstructure anomalies, and behavioral finance critiques (Fama, 1970:38). Meanwhile, labor economics concentrates on wage determination mechanisms, workforce demographics, minimum wage policies, and skill-biased technological change (Acemoglu & Pischke, 2001:15), and international economics analyzes comparative advantage frameworks, exchange rate regimes, and trade agreement impacts (Rodrik, 2018:89). Micro and macro form theoretical foundations, econometrics supplies methodology; development tackles global poverty, international economics deciphers cross-border flows, labor economics anchors social welfare, financial economics drives capital allocation—spanning individual choices to national policy.

The present study aims to investigate whether there are any intradisciplinary variations or similarities in the use of Theme and TP patterns across seven economics subdisciplines. The study addressed the following research question: Are there any significant intradisciplinary variations and similarities in the choice of Theme and TP patterns in RA abstracts from seven economics subdisciplines: macroeconomics, microeconomics, econometrics, development economics, financial economics, labor economics, and international economics?

2. Literature Review

Whereas few studies investigated thematic choices and TP patterns in RA abstracts from one discipline (Lorés, 2004; Nwogu & Bloor, 1991), others conducted interdisciplinary studies of variations and similarities in the thematic organization of RA abstracts across a range of disciplines (Alotaibi, 2020; Ebrahimi, 2016; Ebrahimi & Khedri, 2011; Leong, 2016). Nwogu and Bloor (1991) investigated TP in medical RA abstracts and the findings revealed that constant and linear TP patterns were evenly employed. Lorés (2004) analyzed the rhetorical structure and thematic organization in thirty-six applied linguistics RA abstracts and the findings indicated that RA abstracts tend to combine linear and constant TP patterns, with a tendency for the Results/Discussion sections within the abstract to employ linear patterns.

Several studies investigated interdisciplinary variations in the thematic organization of RA abstracts across a range of disciplines. For example, Ebrahimi and Khedri (2011) investigated thematicity in ten RA abstracts from two disciplines: chemical engineering and applied linguistics. The findings revealed that the unmarked topical Theme was overused in the RA abstracts of both disciplines. Chemical engineering writers employed more interpersonal Themes (14%) than did those of applied linguistics (5%). Besides, the chemical engineering RA abstracts lacked instances of marked Themes. This finding could be attributed to the researchers' use of a small data set, only five RA abstracts in each discipline. In another study, Ebrahimi (2016) conducted a cross disciplinary study of variations in the use of Theme in one hundred and twenty RA abstracts from four disciplines: applied linguistics, economics, agriculture, and applied physics. Unmarked topical Theme was also the most frequently used type, followed by the textual Theme. The marked topical Themes were more commonly used in soft disciplines than in hard disciplines. Ebrahimi (2016:108) attributes the lack of interpersonal Theme to the "argumentative nature and impersonal tone of the RA abstract genre." The findings confirm the presence of disciplinary variations in the use of Theme. Alotaibi (2020) argues that interpersonal Themes are more favored in soft disciplines than in hard disciplines. This indicates that the sciences favor a more direct style of writing. Employing Halliday's framework, Leong (2016) examined whether there were any differences in the thematic organization of two hundred RA abstracts from two disciplines: sciences and the humanities. The sciences, however, did not include economics. The linear TP pattern was the general structure in both disciplines; the two disciplines, however, differed in the clausal distribution of topical Themes. The authors of the science RA abstracts employed more topical Themes and fewer embedded clause topical Themes than those of the humanities. Alotaibi (2020) investigated interdisciplinary variations in the use of thematic choices in one hundred and eighty RA abstracts from six disciplines: business administration, applied linguistics, accounting, physics, chemistry, and computer science. The findings indicated that the unmarked topical Theme was the most frequently used type in all sets of RA abstracts, while the interpersonal Themes were the least frequent. Some interdisciplinary variations occurred only in textual Theme type, such as the common use of adversative conjunctions in all the disciplines. Although conjunctive adjuncts were used more than conjunctions in all six disciplines, computer science heavily employed conjunctive adjuncts (91.8%) and Applied Linguistics employed conjunctions and conjunctive adjuncts almost equally.

The findings in the aforementioned studies indicate that a discipline's requirements (i.e. rules and conventions) influence the choice of a particular Theme type or pattern. What motivated the present study is the lack of similar investigations of intradisciplinary variations in thematic choices and TP patterns in RA abstracts from economics subdisciplines.

In the following section, the theoretical framework of the present study will be outlined. Then, the data and research methods, and discussion of the results will be presented. Finally, the paper will present the conclusions and implications of the study.

3. Theoretical Framework

The present study is framed by Halliday's (2014) systemic functional linguistics' (SFL) approach to language and Daneš's (1974) model for TP patterns. SFL holds that language serves three main functions: experiential meanings represented by our experience of the world, interpersonal meanings represented by our use of the interactive features, and textual meanings that create cohesive and coherent texts. An analysis of the textual metafunction of a text, therefore, can reveal its organization. One of the main structural systems within the textual metafunction is Theme.

Theme is always clause-initial in the English language, it is "the element that serves as the point of departure of the message; it is that which locates and orients the clause within its context" (Halliday, 2014:89). It is the first nominal, adverbial, or prepositional group or phrase that provides experiential content. Rheme, on the other hand, occurs later in a clause, it is "the part in which the Theme is developed" (ibid). For example, "This paper" in "This paper [Theme] investigates how firms' pollution incentives are influenced by their ability to divest polluted assets. [Rheme]" (Journal of Financial Economics, 2025) is the topical Theme and the rest of the clause is the Rheme.

The initial elements of a clause can be topical (i.e., experiential), interpersonal, and textual. Whereas the latter two elements are optional, the topical Theme is obligatory, and it is realized by a participant (nominal group), a circumstance (prepositional or adverbial phrase), or even a process (verb). For example, "data subscriptions" in "But data subscriptions [Theme] restore this monopoly power. [Rheme]" (Journal of Financial Economics, 2025) is a topical Theme and the rest of the clause "restore this monopoly power" is the Rheme. The element 'But' is a textual Themes. Interpersonal Themes express a writer's opinion, while textual Themes develop grammatical and logico-semantic links within and beyond a clause (Halliday, 2014).

The second classification of thematic choices is the unmarked/marked contrast. The unmarked Theme is the typical way of starting the message of a clause, while the marked Theme is the atypical ('unusual') choice rarely employed by writers. At the clause level, the unmarked Theme in declarative statements is realized by the Subject (e.g. "The findings [Theme] support that … [Rheme]") and in marked cases by fronted complements and circumstantial adjuncts. Complements are less commonly used in academic writing than circumstantial adjuncts, and they are realized by a nominal/adjectival group and have the potential to be Subjects but they are not (e.g. "this responsibility [Theme] we accept wholly [Rheme]") (Halliday, 2014:99). Circumstantial adjuncts, on the other hand, are more commonly employed, and they are realized by an adverbial or prepositional group/phrase. For example, the marked Theme "For funds with difficult to categorize investment strategies" in "For funds with difficult to categorize investment strategies, [Theme] mismatched benchmarks are less associated with performance bias. [Rheme]" (Journal of Financial Economics, 2025) is a circumstantial adjunct realized by a prepositional phrase. One function of marked Themes is announcing a change of topic, guiding readers through the text, and showing them how to interpret the ideas being presented (Mauranen, 1996). Marked Themes then have a facilitative effect as they render the message unambiguous by setting the scene for the clause carrying the message; most writers of RA abstracts, however, minimally employ this thematic choice type due to word limit constraints.

Table 1 An example of the split Rheme pattern

Theme	Rheme
I	document **the significant positive impacts of the program**, not only on the long-term integration of refugees into the healthcare system but also on the health of the next generation.
The program	improves the cumulative use of primary care services for 12 years after arrival by 44%.
This increase	is proposed to partially work through refugees' increased labor market attachment and economic success.
The program	also results in spillover benefits for the health at birth of the children of refugees with 21–49% decreases in premature birth, low birth weight, and short birth length.

Whereas thematic choices establish cohesion within a clause, TP patterns of Theme-Rheme can develop cohesion beyond the clause. Daneš (1974) was the first to introduce the TP model adopted by many researchers. Theme-Rheme patterns contribute to maintaining a naturally flowing text in three possible ways. One is through linear (or sequential) development in which the Rheme of one clause is introduced as the Theme of the subsequent clause, e.g., We [T1] find that marginally admitted students who enrolled through the affirmative action [R1] … // But the adoption of affirmative action [T2=R1] also caused a large decrease in earnings for the university's most highly ranked students. [R2] (Journal of Labor Economics, 2025). Authors choose to present ideas

in this way to create a text that seems to flow logically. A second TP pattern, constant, is where the same Theme is reiterated (or repeated) in subsequent Themes, while Rhemes change (e.g., "We [T1] study the role of the speed of delivery of digital loans on repayment. [R2]// Our study [T2=T1] uses unique administrative data… [R2]// We [T3=T1] show that reducing loan speed by doubling the delivery time from ten to twenty hours decreases the likelihood of default by 21%. [R3]" (Journal of Development Economics, 2025). Maintaining the same entity as the Theme of more than one clause develops a topic-focused text if it is moderately employed. A third TP pattern is the split Rheme (or multiple-Theme) pattern. It is when the Rheme, mostly of a paragraph-initial clause, carries more than one idea that is then developed one by one in subsequent Themes (or clauses), as shown in Table 1.

The split Rheme pattern is considered "the most difficult for students as different pieces of information are packed or listed in the Rheme position and then picked up and used as Themes in the following clauses." (Alyousef, 2020:276)

4. Methodology
4.1. Corpus
The sample comprised 140 RA abstracts (35,847 words) of studies published by economics scholars (Table 2) in seven economics subdisciplines. As the researcher was not a member of this community of practice, an experienced economics professor provided support for the selection of the major economics subdisciplines and the selection of reputable journals with high impact. Also, since most intradisciplinary linguistic studies of RA abstracts select 12-20 abstracts in each subdiscipline, 20 RA abstracts in each subdiscipline were deemed sufficient to provide invaluable insights for economics academic practice. Corpus sampling was thus based on the idea that larger data sets would yield more reliable findings. The corpus selection criterion of whether the RAs were written by native or non-native authors was not taken into consideration since the RAs were published in high-ranking journals.

Table 2 Summary of data and journals' impact factor

	Economics Subdiscipline	Journal	Impact Factor	No. of RAs	Word Count
1	Macroeconomics	American Economic Journal: Macroeconomics	5.7 (2024)	20	4,668
2	Microeconomics	American Economic Review	11.6 (2024)	20	3,688
3	Econometrics	Econometrica	7.1 (2024)	20	5,524
4	Development Economics	Journal of Development Economics	4.6 (2024)	20	5,716
5	Financial Economics	Journal of Financial Economics	12.0 (2024)	20	5,912
6	Labor Economics	Journal of Labor Economics	5.0 (2024)	20	4,448
7	International Economics	Journal of International Economics	4.0 (2024)	20	5,891
		Total		**140**	**35,847**

Although *American Economic Review* (AER) is a comprehensive journal, nearly half of its papers focus on microeconomics, and it frequently publishes Nobel Prize-winning breakthroughs.

The 140 RAs were published during the years 2024-2025. The abstracts were selected randomly and downloaded from the databases and then converted from pdf format into txt format. The abstract sections were then extracted and saved in a separate Microsoft Word file. The abstracts were carefully checked if there were any conversion errors.

4.2. Research Procedures and Instrumentation
The clause rather than the T-unit is treated as the basic unit for analysis in this paper, which is defined as "any stretch of language centered around a verbal group" (Thompson, 2014), and it includes the dependent and independent clauses. It is a unit in which the experiential, interpersonal and textual meanings are combined, and the choice of Theme in a clause "functions to organize and carry forward the discourse (Halliday & Matthiessen, 2014: 88)". The T-unit is frequently adopted in thematic analysis of texts (Williams, 2009) since analyzing T-units allows the researchers to better perceive "the method of development" of a text, and the thematic structure of a dependent clause tends to be constrained by the independent clause (Fries & Francis, 1992:47). However, we believe that, though the thematic choice of a dependent clause may be limited, analyzing Theme in both dependent and independent clauses can help us better discern the major and minor differences in thematic choices in economics articles and how intradisciplinary essays differ in organizing text.

The steps in analyzing the corpus were as follows. The thematic structure in the clause and clause complex is annotated by the UAM Corpus Tool (version 6.2, O'Donnell, 2021), then manually analyzed to verify the results. The number of unmarked and marked Themes, and the number of the subtypes of interpersonal, topical, and textual Themes are respectively counted for

comparison. Next, the TP patterns were identified. All of the features identified in the economics RA abstracts were reported both qualitatively and quantitatively. A chi-square test was run, employing Preacher's online chi-square Test Calculator 3 to investigate if there were significant differences between the frequencies of occurrence of the three thematic aspects (Theme types, thematic markedness, and TP patterns) in the seven economics subdisciplines. Finally, the results are discussed and conclusions are presented.

The qualitative and quantitative methods are adopted in this study. The qualitative method refers to the judgment and division of themes, examination of the TP patterns and analyze the results. Annotation of theme and rheme structure was performed using UAM Corpus Tool (version 6.2, O'Donnell, 2021). The quantitative method is reflected in counting the number of types of Themes and TP patterns, and in conducting chi-square in chi-square Test Calculator 3.

5. Results and Discussion

This section attempts to investigate and discuss if there are any significant intradisciplinary variations or similarities in the choice of Theme and TP patterns in the RA abstracts from seven economics subdisciplines: macroeconomics, microeconomics, econometrics, development economics, financial economics, labor economics, and international economics. Table 3 shows the frequencies and percentages and the chi-square distribution of the three thematic aspects (Theme types, thematic markedness, and TP patterns) in the seven economics subdisciplines at both local and global levels.

The chi-square test finding for the use of Theme types (df=12) indicates significant differences between the seven economics subdisciplines at $p < .05$ (p-value=0.0294), whereas there were no significant differences in the use of thematic markedness between the seven subdisciplines since the p-value was larger than .05 (p-value=0.0762, df=11.419).

Table 3: The frequency and percentage of three thematic aspects in the seven subdisciplines

		Macro.		Micro.		Econometrics		Development Economics		Financial Economics		Labor Economics		International Economics		Chi-square	P-Value
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Theme Types	Topical	194	85.46	132	86.84	230	90.55	229	89.11	242	87.68	176	87.56	263	93.59		
	Textual	33	14.54	20	13.16	23	9.06	24	9.34	34	12.32	25	12.44	17	6.05		
	Interspers.	0	0	0	0	1	0.34	4	1.56	0	0	0	0	1	0.36		
		227	100	152	100	254	100	257	100	276	100	201	100	281	100	22.806	0.0294
Thematic Markednes	Unmarked	179	92.27	113	85.6	204	88.69	195	85.15	216	89.26	154	87.5	244	92.78		
	Marked	15	7.73	19	14.4	26	11.31	34	14.85	26	10.74	22	12.5	19	7.22		
		194	100	132	100	230	100	229	100	242	100	176	100	263	100	11.419	0.0762
Thematic progression	Linear	33	63.46	22	64.71	31	50	33	57.89	26	45.62	18	52.94	15	45.46		
	Constant	16	30.77	12	35.29	30	48.39	22	38.6	28	49.12	14	41.18	16	48.48		
	Split Rheme	3	5.77	0	0	1	1.61	2	3.51	3	5.26	2	5.88	2	6.06		
		52	100	34	100	62	100	57	100	57	100	34	100	33	100	10.436	0.5777

A detailed presentation and discussion of the findings is presented below in terms of the local and global levels of organization of Theme in the seven economics subdisciplines.

5.1. Topical Theme

The results showed that topical Theme was the most frequently used Theme type in the RA abstracts of all seven economics subdisciplines (Table 3). Between 85.46% and 90.55% of all the Theme types occurring in the economics RA abstracts were topical Themes. This indicates the authors' awareness that maintaining the same entity (or topic) as the Theme of more than one clause develops a topic-focused text. This finding is in line with many studies (Alotaibi, 2020; Ebrahimi, 2016; Ebrahimi & Khedri, 2011; Leong, 2016). For example, Leong (2016) investigated 200 RA abstracts from science and humanities disciplines and found that topical Themes were used more in scientific abstracts. As stated in Section 2, this finding is not surprising since the unmarked Theme is the typical way of starting the message of a clause.

Halliday (2014, p. 87) argues that "all deictic elements are characteristically thematic." A closer look at the elements selected as topical Themes in the economics RA abstracts reveals the occurrence of clause-initial deictic determiners (or demonstratives) 'this/these' in the subdisciplines macroeconomics, labor economics, development economics, financial economics, international economic (Frequency, f, = 11-17)), whereas the frequency of occurrence of initial deictic determiners in the other subdisciplines ranged 3-8 (Table 4).

Table 4 Examples of initial deictic determiner "this" as topical Theme

Topical Theme	Rheme
"This study	investigates how child disability affects parental labor supply using a difference-in-differences design and Taiwanese population-wide administrative data."// (Journal of Development Economics, 2025)
"This paper	explores whether a 1990 reform that eliminated gender-segregated and gender normative industrial arts and home economics classes in Japanese junior high schools led to behavioral changes two decades later, when students were married and in their early 40s."// (Journal of Labor Economics, 2025)
"This effect	is particularly pronounced during periods of UK bond issuance and is linked to higher term premia. "// (Journal of Financial Economics, 2025)

These deictic elements are the most commonly employed discourse deixis in RAs as they contribute to cohesion and coherence of a text. Most of the instances of the demonstrative (or deictic determiner) "this" co-occurred with the Themes "study," "paper," "effect," and "results" when presenting the aims, as in "This study [Theme] investigates … [Rheme]," "This paper [Theme] explores … [Rheme]". Other deictic elements that occurred in the economics subdisciplines included the deictic relatives "that," "which," and "who," particularly in the economics subdisciplines of labor economics, macroeconomics and financial economics (f = 18-49), whereas its occurrence in the other subdisciplines ranged 6-8.

Another topical Theme observed in the economics RA abstracts is the first-person plural pronouns 'we/our', which were employed across all seven economics subdisciplines, though with varying frequency. The use of this form indicates an authorial stance and increased author visibility (Ebrahimi & Chan, 2015; Ebrahimi, Chan, & Ain, 2014; Leong et al., 2018). Whereas this form occurred frequently in the financial economics, development economics and international economics subdiscipline (47 instances), it rarely occurred in the other four subdisciplines (2-8 instances). This suggests financial economics scholars' preference to exhibit greater visibility than their counterparts in the other economics subdisciplines. This could also be attributed to the financial situation that differentiate it from the other subdisciplines. Researchers argue that a further function of thematized "we" is that it enables the authors to emphasize the novelty of their proposed work (Ebrahimi & Chan, 2015; Martínez, 2003), which seems to be the case in the following excerpts.

(1) "**We** [Theme] propose a model in which arbitrageurs act strategically in markets with entry costs. <u>In a repeated game,</u> arbitrageurs choose to specialize in some markets, which leads to the highest combined profits. **We** [Theme] present evidence consistent with our theory from the options market, in which suboptimally unexercised options create arbitrage opportunities for intermediaries. **We** [Theme]use transaction-level data to identify the corresponding arbitrage trades. <u>Consistent with the model,</u> only 57% of these opportunities attract entry by arbitrageurs. Of those that do, 49% attract only one arbitrageur. **Finally, we** [Theme] detail how market participants circumvent a regulation devised to curtail this arbitrage strategy." (Journal of Financial Economics, 2025)

The use of the first-person plural pronoun 'we' was more frequent than the possessive 'our' in the other six subdisciplines, reflecting a deliberate authorial strategy distinct from hard sciences. This pattern sharply contrasts with disciplines like chemistry (Behnam

et al., 2014), where possessive "our" dominates to dilute individual responsibility. Economics authors instead deploy "we" to assert intellectual agency, particularly in financial economics where market-driven competition necessitates overt claims to methodological innovation (e.g., "**We** devise a simple model of liquidity demand and supply to study dealers' liquidity provision in currency markets.").

Notably, disciplinary divides emerged in frequency: International economics mirrored financial economics' high "we" density (35-42 instances/10k words), often invoking Kuo's (1999) exclusive "we" to emphasize field-specific contributions (e.g., "we design a poverty alleviation framework"). In contrast, macroeconomics and microeconomics utilized it sparingly (6-9 instances), preferring passive constructions for theoretical objectivity. Labor economics occupied a middle ground (12-15 instances), where "we" signaled empirical collaboration without compromising policy neutrality. Crucially, singular "I" remained exceptionally rare (<0.5 instances/10k words overall), yet exhibited niche acceptability in development economics, particularly in sole-authored Journal of Development Economics papers employing narrative fieldwork accounts (e.g., "**I** develop a model of endogenous skill-biased technical change in developing countries.").

5.2 Textual Theme
The results showed that textual Theme was the second most frequently used Theme type in the RA abstracts of all seven economics subdisciplines (Table 3). The frequency of this Theme type ranged from 6.05% to 14.54% A textual Theme is employed to set grammatical and/or semantic relations within a clause using conjunctions (e.g. so, but, or), while logico-semantic relationships between a clause and the preceding text were established using conjunctive adjuncts of addition, apposition, and other semantic relations (e.g. however, while, on the other hand). Over half of the instances of the textual elements were 'and' followed by 'however.' Conjunctive adjuncts are employed in RA abstracts to explicitly advance arguments and highlight the importance of the study. This finding is in line with Alotaibi's (2020) study of Theme in computer science, which indicated the heavy use of conjunctive adjuncts. Table 5 shows instances of the authors' ways of realizing causal (therefore, consequently), adversative (however), and additive (additionally, moreover) meanings through conjunctive adjuncts.

Table 5 Examples of textual Theme in the economics RA abstracts

Subdiscipline	Textual Theme	Interpersonal	Topical Theme	Rheme
Financial Economics	Furthermore,		the announcement return	predicts near-term macroeconomic growth.
	Moreover,		the leverage constraints theory	counterfactually predicts that market and BAB Sharpe ratios increase with volatility.
Development Economic	Additionally,		our findings	indicate that child disability increases mothers' likelihood of seeking psychiatric care shortly after childbirth and decreases the family's probability of having subsequent children.
Labor Economics	But		the adoption of affirmative action	also caused a large decrease in earnings for the university's most highly ranked students.
International Economics	But	more recently,	globalization	has stalled.

Similar conclusions were drawn in previous research showing that retrospective cohesive devices tend to occur in argumentative RA sections to persuade readers of the validity of claims (Gosden, 1992; Jalilifar, 2010)

5.3 Interpersonal Theme
The use of interpersonal Theme in economics RA abstracts was negligible. This finding converges with several studies of Theme in RA abstracts (e.g. Alotaibi, 2020; Ebrahimi, 2016). The low percentage of the interpersonal Theme type is in line with what would be expected in objective, non-evaluative scientific RA discourse (Gray & Biber, 2012; Hyland, 2005). The strategic use of WH-interrogatives as interpersonal Themes is uniquely observed in development economics and econometrics. Development economics deploys questions to scaffold policy debates—e.g., "How do policymakers value advice from local experts versus formal evidence from impact evaluations when making policy decisions?", "Does this policy achieve its aims?"—harnessing "How/Does" to frame issues central to its mission. Econometrics conditionally adopts WH-interrogatives for methodological refinement ("How

do collateral requirements impact consumer borrowing behavior?"), yet systematically avoids modal adjuncts (e.g., "Notably") or vocatives.

Except for the development economics and econometrics, the other five economics RA abstracts included instances of impersonal projections that expanded the meaning potential in a clause, as they created a logical relation between Theme-Rheme (e.g., 'show,' 'suggest,' and 'indicate'): "Our results show that ...." These projections yield a clear and coherent line of argument. Halliday (2004:155) argues that "as scientific discourse has come to be depersonalized, during the past hundred years or so, impersonal projections have tended to be increasingly hedged around."

5.4 Unmarked and Marked Themes

The findings revealed that unmarked Themes are far more prevalent than marked Themes in the RA abstracts of all the seven economics subdisciplines (Table 3). The distribution of thematic markedness was almost equal across the seven economics subdisciplines, as evidenced by the chi-square test finding that showed no significant differences in the use of thematic markedness across the seven subdisciplines (p-value=0.0762, df=12 & 6). The frequency of unmarked Themes ranged between 85.15% and 92.78%, whereas that of marked themes ranged 7.22%-14.85% (Table 3). The high frequency of unmarked Theme indicates the authors' preference for maintaining the same topic rather than shifting focus through the frequent use of marked Themes (e.g., "Wage heterogeneity [Unmarked Theme] is important at all ages. [Rheme]" (Journal of Labor Economics, 2025). The authors' preference for employing the typical (or usual) way of starting the message in a clause (i.e. using the unmarked Theme) is expected since it saves text space. The frequent use of unmarked Themes could be attributed to the relatively compact nature of the RA abstract. This finding is in line with the majority of studies (e.g. Alotaibi, 2020; Ebrahimi, 2016; He & Tian, 2018; Leong, 2016) which found that unmarked Themes outnumbered the marked Themes. For example, Ebrahimi and Khedri (2011) found that unmarked Themes were over-used in RA abstracts of both Chemical Engineering and Applied Linguistics. In these subdisciplines of economics, Marked Themes are employed to validate claims and provide information related to research background, time, or space, as shown in Excerpts 2-5 below.

(2) "In a narrative approach, [Marked Theme] we use only locally generated spikes in uncertainty, for which the narratives around the events suggest that they are plausibly exogenous." [Rheme] // (Journal of International Economics, 2025)
(3) "After adjusting for the maturity-matched spreads from derivatives markets, [Marked Theme] we find significantly lower spreads for SOFR-linked FRNs." [Rheme] // (Journal of Financial Economics, 2025)
(4) "In Medellín, Colombia, [Marked Theme] criminal leaders told us they rule to protect drug rents from police. [Rheme]" // (Journal of International Economics, 2025)
(5) "In an event-study setting based on monthly remittance flows from Italy to 81 developing countries for 2005–2015, [Marked Theme] we investigate their dynamics in the aftermath of disasters. "[Rheme] // (Journal of Development Economics, 2025)

The adverbial group and the prepositional phrases (or circumstantial adjuncts) function as Theme as they can be moved into Rheme position (backgrounded); both the Theme and Rheme are called agnate clauses since they are reversible. The circumstances in the above excerpts conflate with the Subject (or take its position) to make texts more elaborate. Fronting the circumstantial elements allows authors to place the study within a wider context and thereby motivate the study. Davies (1989) states that a marked Theme is mostly employed in scientific RAs to validate some evidence (e.g. according to our findings), a writer's viewpoint (Surprisingly), and time/space (in brief, in figure x). Alyousef (2020) argues that a Theme is emphasized through intonation when it is moved into the Rheme position and replaced with adverbial or prepositional phrases.

The first part of this section examined within-clause thematic choices. What follows is the global thematic analysis of the economics RA abstracts to reveal the authors' preferred ways of sequencing information across the clause.

5.5 Thematic Progression Patterns

A combination of linear and constant Theme patterns constituted over 90% of the TP patterns in the seven economics subdisciplines (Table 3). This finding is in line with the majority of studies on RA abstracts in other disciplines (e.g. Lorés, 2004; Nwogu & Bloor, 1991). The chi-square test finding for the use of TP patterns indicated no significant differences across the seven economics subdisciplines (p-value=0.5777, df=10.436).

5.5.1 Linear TP pattern

The linear (or sequential) TP pattern was the most dominant pattern in five out of the seven subdisciplines, as the financial economics and the international economics RA abstracts had slightly more instances of constant TP patterns than linear. The

occurrence of the linear TP pattern in the seven subdisciplines comprised 45.46% - 64.71% of all the TP patterns. The dominance of this pattern corresponds with studies of RA abstracts in sciences and humanities (Leong, 2016) and applied linguistics (Ebrahimi, 2016; Lorés, 2004). The high frequency of this pattern can be explained by the fact that this pattern contributes to a hierarchically structured cohesive text when information in the Rheme position is linked and developed in the subsequent Theme, thereby creating a clear and coherent line of argument that acts as a lead for readers. As Halliday (1993:131) states, scientific texts tend to develop a linear "chain of reasoning (ultimately based on experiments) in which each step leads on to the next." The skillful employment of this pattern is illustrated in Table 6.

Table 6 Examples of linear TP pattern in the seven economics RA abstracts

Economics Subdiscipline	Theme	Rheme
Macroeconomics	Terms of trade **To capture the relevance of terms-of-trade fluctuations** for the domestic business cycle,	are an inaccurate empirical proxy for how **fluctuations** in international prices affect the economy. the role of export and import prices needs to be analyzed separately.
Microeconomics	We **Overlapping ownership**	show that in most cases—and especially when **overlapping ownership** is already widespread … can mostly be beneficial only under substantial increasing returns to scale, …
Econometrics	We **Welfare**	consider the problem of repeatedly choosing policies to maximize social **welfare**. is a weighted sum of private utility and public revenue.
Development Economics	Recent years **Poverty maps produced with these methods**	have witnessed considerable **methodological advances in poverty mapping**, … generally share a common validation procedure, …
Financial Economics	On the financial side, **This high retention**	firms paid out only about one-third of the new liquidity to shareholders and **retained half as cash**. was not associated with poor governance.
Labor Economics	Insurance against transitory shocks to head earnings Both permanent and transitory variations **in spouse earnings**	comes primarily from transfer income rather than **spouse earnings**. have an equalizing effect on family income inequality.
International Economics	Findings **This**	**suggest that a one percent increase in imports (as share of GDP) leads to a 0.17 percent decline in hours per worker.** implies dominating income effects backed by a wage elasticity of -0.16 and a trade elasticity close to unity.

Each bolded Theme in Table 6 is derived from the Rheme in the previous clause, giving a strong sense of topic continuity and, in turn, sustaining the argument being made. The clause-initial deictic determiner 'this' in one of the international economics RA abstracts refers back to the clause "suggest that a one percent increase in imports (as share of GDP) leads to a 0.17 percent decline in hours per worker." The author uses this element instead of repeating the whole clause to save text space. Similarly, the author in the financial economics subdiscipline employs the Theme (head noun) "This high retention" to refer back to the clause "one-third of the new liquidity to shareholders and retained half as cash." Structural topical Themes should be noted that the demonstratives 'this', 'these' and 'that' seem most often to be used anaphorically referring back to a proposition in the Rheme position (See also Table 4). This pattern aids scholars in producing a characteristically coherent argumentative RA abstract, as they have to convince their readers of the relevance of their proposed work (Swales, 2004).

5.5.2 Constant TP Progression

The second most common TP pattern in the economics RA abstracts was the constant pattern, comprising 30.77%-49.12% of all the TP patterns the authors employed as one of the methods to develop information. While all seven economics subdisciplines recognized the usefulness of linking clauses by repeating the Theme of a previous clause, the qualitative analysis indicated that they skillfully used it for slightly different purposes. There was no quantitative difference in the use of the constant TP pattern across the seven economics subdisciplines; the qualitative analysis, however, revealed a difference in the functions that underlie the use of this pattern (Table 7).

Table 7 Examples of constant TP pattern in the economics RA abstracts

Economics Subdiscipline	Theme	Rheme
Macroeconomics	We	identify Treasury supply shocks using auction data, interpreting changes ….
	We	isolate the component of futures price variations …
	We	study how supply affects financial markets …
	We	show that increases in Treasury …
Microeconomics	An entrepreneur	receives funding from an investor and has private information about a project, …
	The entrepreneur	has a real option to pivot, i.e., to abandon the project and to start a new one.
Econometrics	This paper	shows the endogeneity of amenities …
	We	quantify this mechanism…
	We	estimate our model …
Development Economics	We	examine the impact of the transition to direct mayoral elections …
	We	leverage the arguably exogenous timing
	We	find that the transition …
	We	also determine that the transition resulted …
Financial Economics	**Evidence** from online data markets	supports the model's insight that subscriptions indicate market power.
	Model and **evidence**	reveal that data subscriptions …
Labor Economics	This paper	provides a transparent assessment of the mix of Bayesian and frequentist thinking …
	It	evaluates random imputation to replace missing outcome or covariate data …
International Economics	We	use a two-country model with financial frictions and fiscal policy …
	We	estimate the model using data for the U.S. and a "rest-of-the-world" aggregate.
	We	find that about 32 percent of U.S. current account balance fluctuations …

The thematic element "we" (referring to the authors) was successively reiterated across several clauses to recursively present the aims and the methods (Alyousef, 2021). The reiterated clause "dynamic model of residential choice" in the econometrics subdiscipline is elided in the following clause and replaced by the word "model" to refer to the presupposed clause "dynamic model of residential choice." The use of this complex pattern demonstrates the author's advanced writing skills where each aim is followed by the procedure which keeps the reader focused. Rather than repeating the same Theme "Job movers who experience joblessness," one of the authors in the macroeconomics subdiscipline uses the synonym "displaced workers." Similarly, one of the authors in the financial economics subdiscipline used the synonym 'outcomes' in "the study outcomes" instead of reiterating the same phrase, "the results of this study." The identified functions of this pattern offer authors a strategy to give additional information about a topic closely related to their work. The economics authors demonstrated their advanced writing skills by not only reiterating Theme but also using various writing strategies that cope with word limit constraints, such as omitting the classifiers (or words) accompanying the head noun, the use of synonyms, and the pronoun "it".

These complex textual maneuvers suggest that the constant TP pattern functions not merely as a grammatical mechanism, but as a multi-layered rhetorical instrument enabling economists to navigate specific disciplinary conventions while optimizing information flow in constrained academic genres.

5.5.3 Split Rheme TP Pattern

The split Rheme pattern occurred the least in all seven subdisciplines, comprising 0.00% - 6.06% of all the TP patterns. This finding, however, was expected due to the concise nature of an RA abstract, which requires an author to shift from one proposition to another. The split TP pattern unfolds across many clauses because it carries several pieces of information revolving around one major topic, with each piece taking a thematic position in a separate consequent clause, forming a cluster of topically related clauses. Although there was a quantitative difference in the use of the split pattern across the seven economics subdisciplines, the qualitative analysis found a similarity in the functions of this pattern (Table 8).

Table 8 Examples of split Rheme pattern in the economics RA abstracts

Economics Subdiscipline	Theme	Rheme
Econometrics	Our implementation	is carried out through a **three-stage handicap auction**.
	In stage 1,	each buyer, knowing his first-stage type, is required to select a handicap menu by paying a menu fee.
	A higher menu fee	would lead to a more favorable handicap menu, which charges a lower handicap fee for every possible handicap level.
	In stage 2,	each buyer, informed of his second-stage signal, is required to select a handicap by paying a handicap fee specified by his early chosen handicap menu.
	In stage 3,	all buyers compete for the object via a second-price auction with handicaps.
Financial Economics	It	makes **three main contributions**.
	First, it	reveal that data subscriptions are better for consumers presents closed-form solutions …
	Second, it	shows that wage and employment effects are positively correlated only for certain types of TC and certain parameters…
	Third, we	incorporate a non-traded sector into our framework and show how employment in this sector alters results by offering a new margin of adjustment.
Labor Economics	We	report the results of **two experiments** in which subjects choose a procedure to allocate a reward to half of them.
	The first possibility	is an explicitly random device: the outcome of a lottery.
	The second	is an equally unpredictable procedure with an identical success rate, but without explicit randomization.

The authors used a split Rheme pattern to link clauses containing a list of points (or aspects) such as the three stages in econometrics. The skillful use of this pattern establishes cohesion in the text as the elements in the Rheme signal connections with the successive Themes by highlighting the subsequent propositional content. The split Rheme pattern thus functions prospectively as a guide to signal the information coming next. The lack of significant intradisciplinary differences in the use of TP patterns across the seven economics subdisciplines could be attributed to the conventional stylistic practice in the economics discipline that requires the non-random use of constant and linear TP patterns. This finding corresponds with Lorés's (2004) and Nwogu and Bloor's (1991) studies which indicated that RA abstracts tend to combine these two patterns.

6. Conclusion and Implications

Several studies have conducted interdisciplinary investigations on variations and similarities in the thematic organization of RA abstracts across a range of disciplines; however, similar investigations of RA abstracts of economics subdisciplines are lacking. This research paper is significant as it is the first to investigate the local and global organization of Theme in RA abstracts of seven economics subdisciplines. The results highlighted quantitative and qualitative intradisciplinary similarities and differences. The qualitative results showed that even though there were no significant interdisciplinary differences between the economics RA abstracts and the findings reported in the literature of other disciplines, various interesting linguistic features characterizing the subdisciplines were employed: clause-initial deictic demonstratives 'this/ these' (in three subdisciplines). financial economics, development economics and international economics subdisciplines' authors regularly used first-person pronouns to express their role and contributions to the field of research and indicate increased author visibility.

The study has practical implications for novice economics researchers attempting to write an RA abstract as well as for tutors of English for Academic Purposes courses. One important implication of the results is that thematicity helps academic writers orient their writing at the text level rather than the sentence level through the skillful use of TP patterns. An awareness of the available thematic choices and TP patterns yields a well-structured cohesive and coherent message both within and across the clause. This in turn will facilitate smooth readability and could increase the readership of an abstract. Economics researchers need to consider the intradisciplinary significant similarities and differences in the use of Theme types as well as the key linguistic features when writing an RA abstract in one of the seven subdisciplines. Having observed these important aspects, the flow and organization of an economics RA abstract will be more effective and the chances of having a paper accepted in a high-ranking journal will increase. Future studies could further investigate thematic choices and TP patterns in other sections of economics RAs to compare their findings with those in the present study. It is also recommended that future research investigate and compare interdisciplinary variations in the use of Theme and TP patterns across subfields of other disciplines.

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