



Department of Digital Business

Journal of Artificial Intelligence and Digital Business (RIGGS)

Homepage: <https://journal.ilmudata.co.id/index.php/RIGGS>

Vol. 5 No. 2 (2026) pp: 18204-18211

P-ISSN: 2963-9298, e-ISSN: 2963-914X

Prospect Theory Across Disciplines: A Systematic Literature Review

Azra Devrany Putri Marzuki, Sambas Ade Kesuma

Universitas Sumatera Utara, Medan, Indonesia

azradevrany@students.usu.ac.id, sambas@usu.ac.id

Abstract

Prospect theory is a theory proposed by Kahneman and Tversky. This theory was first developed in 1979. Prospect theory explains how humans behave when making decisions under risk and uncertainty. The initial concept of this theory was originally developed in the fields of behavioral economics and psychology. However, as the model and understanding of prospect theory have developed, it is expected that this theory can be used in other fields. This Systematic Literature Review was created to analyze the current development of prospect theory and how it has developed in research across various fields. The literature data used in this Systematic Literature Review was taken directly from open access journals in Scopus. The data was then extracted and categorized into several sections for analysis. The main category analyzed was the subject area of the selected articles. In addition, other categories such as the year of publication, region, and research methodology were also used. In the categorization, various other theories and models that are often integrated with prospect theory were also found. The results of the analysis show that prospect theory has undergone developments in its understanding and application and has been used for research in fields other than behavioral economics and psychology.

Keywords: Prospect Theory, Systematic Literature Review, Decision Making

1. Introduction

The prospect theory put forward by Kahneman and Tversky has become a very influential theory in understanding decision-making under uncertainty. This theory is contrary to classical utility theory which holds that individuals always make rational decisions. Lead theory argues that individuals tend to make decisions based on advantages and disadvantages with reference points rather than end results alone.[1] Empirical studies related to prospect theory in various fields of study generally use two main concepts, namely loss aversion and framing effect.

Initially this theory was developed in the fields of behavioral economics and psychology Barberis, but today it has been used in various other fields of study.[2] This development shows that prospect theory not only corresponds to economic behavior, but also provides an understanding of this individual behavior towards decision-making under risk and uncertainty in any field. In the last forty years, research involving prospect theory has increased as the fields of psychology, economics, and other approaches have evolved. Therefore, this Systematic Literature Review (SLR) was created to determine the development of the use of prospect theory in various fields of study in the last five years. For more details, this study aims to answer the following research questions:

RQ1:How is the temporal development?

RQ2:What is the field of study that uses lead theory the most in its research?

RQ3:What is the current state of prospect theory in academic literature?

This SLR is expected to contribute to conceptual and methodological developments, both for strengthening the understanding of prospect theory and as a basis for future research.

2. Literature Review: Prospect Theory

Prospect theory is a behavioral theory first developed by Daniel Kahneman and Amos Tversky. This theory explains how individuals make decisions under risk and uncertainty.[3] Prospect theory is contrary to Expected Utility Theory (EUT) which argues that individuals always make rational decisions. According to Kahneman and Tversky, EUT does not fully accurately describe human behavior. This is because in practice, humans are not completely rational. Therefore, lead theory was developed to better understand an individual's response in making risky choices.

Kahneman and Tversky's research found that individuals often make decisions not based on final results, but rather on relative changes in a reference point. In addition, individuals also treat probability with a subjective perception of uncertainty. Lead theory has two main concepts, namely the value function and the probability weighting function.

2.1 Value Function

Value function describes how individuals provide value to the outcome of a decision. In the theory of prospect value function is in the form of the letter "S" and is asymmetrical to the zero point (reference point).

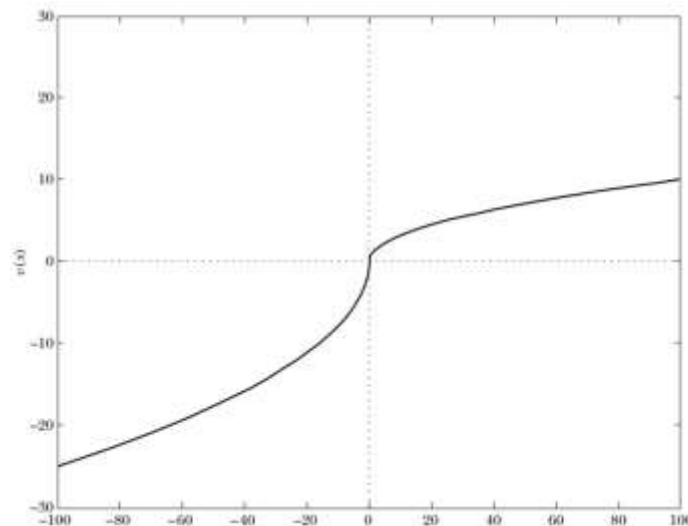


Figure 1. Prospect theory value function

If the point is above the reference point (gains), the value function is concave which indicates a risk aversion attitude. On the other hand, if it is below the reference point (losses), it means that the value function is convex, which indicates a tendency to risk seeking. In addition, if the slope point of the curve for losses is steeper than gains, it reflects the phenomenon of loss aversion. Mathematically, a value function can be made to:

$$v(x) = \begin{cases} x^\alpha, & \text{jika } x \geq 0 \\ -\lambda(-x)^\beta, & \text{jika } x \leq 0 \end{cases}$$

2.2 Probability Weighting Function

The probability weighting function explains that individuals do not assess probabilities in a linear manner. Humans tend to overweight small probabilities, but instead underweighting small probabilities. This means that they treat small opportunities as if they are bigger than they are and big opportunities as if they are smaller. This is the reason why someone is interested in giving a lottery ticket even though the chances of winning are very small and hesitant to buy insurance even though the chances of loss are very small. Mathematically, the probability weighting function is expressed as:

$$\pi(p) = \begin{cases} \pi(0) = 0 \\ \pi(1) = 1 \end{cases}$$

With a log-convex form to p, it produces the effect of certainty and possibility.

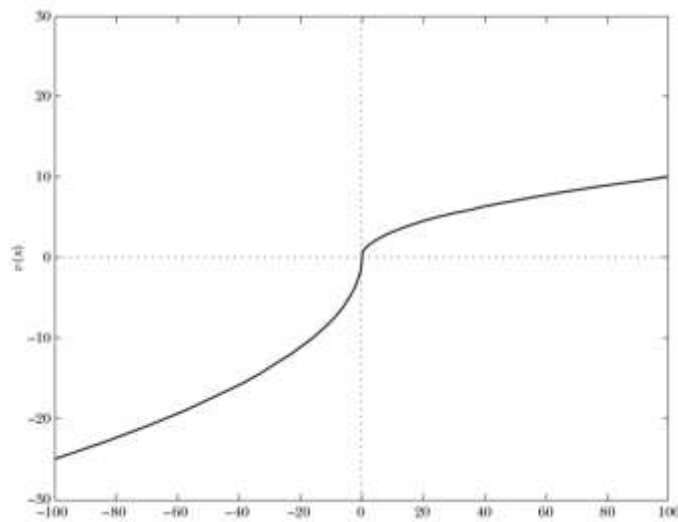


Figure 2. Prospect theory probability weighting function

In his research journal in 1979, prospect theory also introduced several other important phenomena that illustrate human biased behavior in decision-making, namely:

- a. Certainty effect, showing that with the same expectation value, individuals value certain outcomes more than risky outcomes;
- b. Possibility effect, describes the tendency to pay attention to events that are very unlikely to be excessive;
- c. Reflection effect, showing that the pattern of preference for risk reverses direction between the gains and losses domains; and
- d. The reference effect, asserts that an individual's assessment of the outcome of the Decision is highly dependent on how the situation is created, i.e. whether it is perceived as gains or losses from the beginning.

3. Research Methods

This study is a Systematic Literature Review (SLR) which is carried out with the following steps, first, the researcher determines the research questions that will be used as the basis for searching for literature. Then, the researchers compiled criteria to search for literature using Scopus. Here are the criteria that have been determined:

- a. Period 2021-2025;
- b. Subject area: all;
- c. Source type: journal;
- d. Language: English;
- e. Open access

By filtering Scopus searches using the above criteria, 412 articles were found. Then, the 412 articles were re-screened one by one in accordance with the research objectives. From this step, a total of 22 articles were obtained. After that, data was extracted from the 22 articles and the results were analyzed.

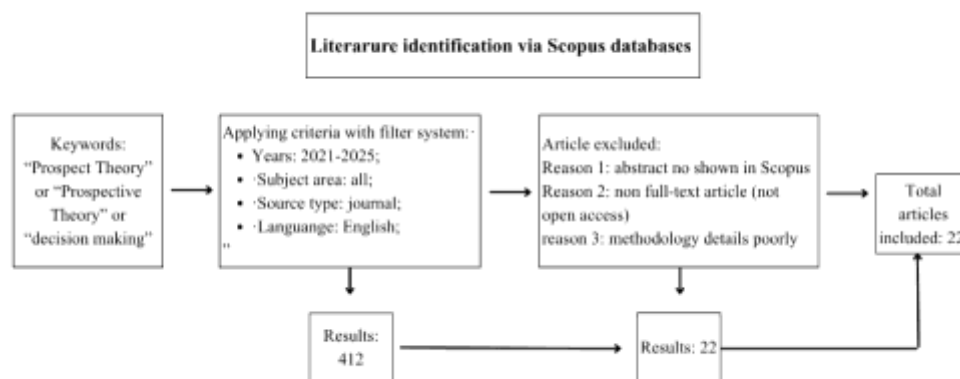


Figure 3. Literature identification

4. Results and Discussions

4.1 Descriptive Findings from Selected Research

After the data is extracted, an in-depth analysis is carried out based on specific categories. Here are the details of the descriptive results of the analysis.

1) Chronological View

Figure 4 shows the trend of publishing articles related to prospect theory in the period 2021 to 2025. It can be seen from the selected literature that the publication of articles using prospect theory from 2021 to 2024 has the same number, namely five. This can be interpreted that prospect theory is consistently used every year. Meanwhile, because this research began to be carried out in the third quarter of 2025, the selected literature produced was not as much as in previous years.

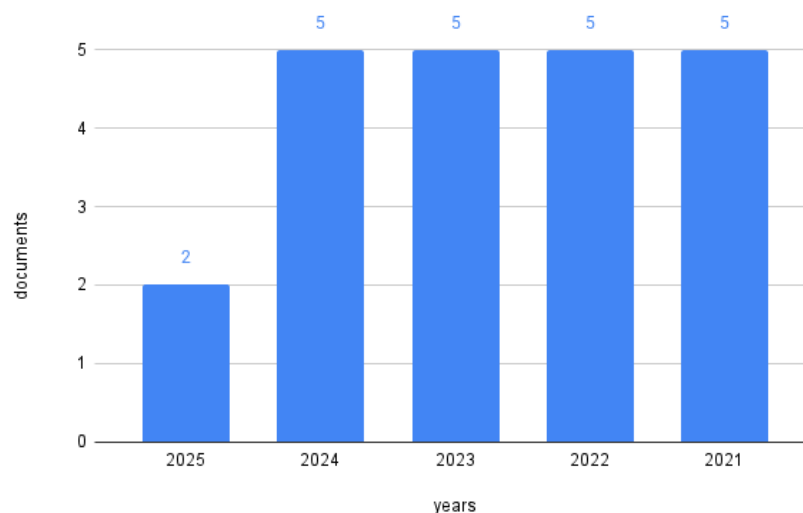


Figure 4. Documents publication throughout the years

2) Number of Studies by Region

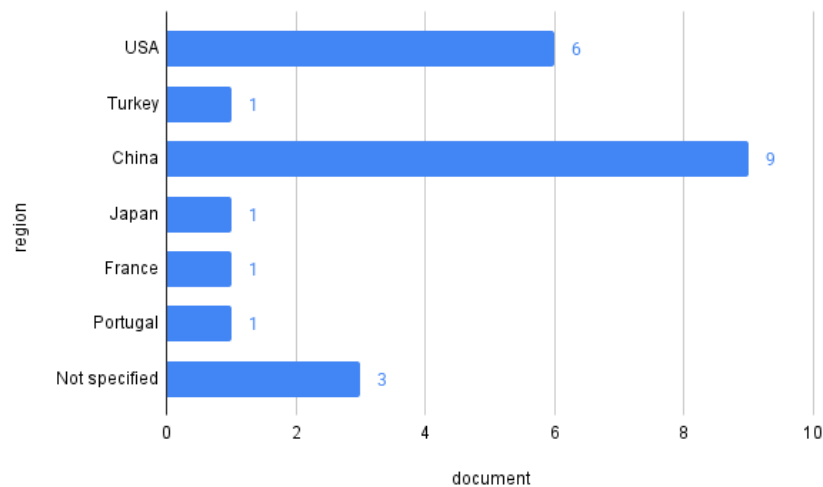


Figure 5. Distribution of studies by region

It can be seen in figure 5, from the 22 selected articles, the dissemination of prospect theory studies was carried out by 6 countries, where there were 3 articles, which were not explained by the country of research so they could not be identified. The most publications are in China, which is as many as 9 article documents. Then, followed by the United States as many as 6 articles.

3) Research Methodologies

The classification of the use of qualitative and quantitative research methods in the selected literature can be seen in figure 6. Based on the results of the descriptive analysis, the quantitative research method is the most widely used method, which is 86.4% of 22 documents. As for the use of qualitative methods, it is only 13.6%.

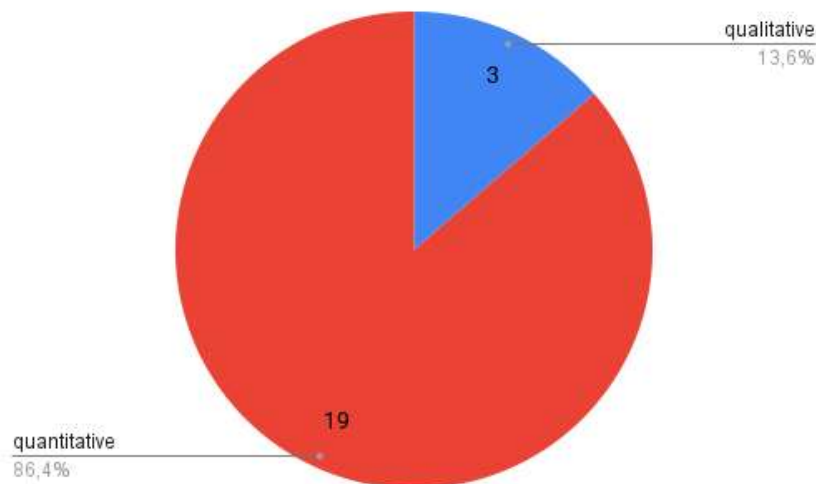


Figure 6. Distribution of research methodologies

4) Other Theories used with Prospect Theory

In the selected articles, you can find the use of theories or other models that used in conjunction with or to support the Prospect Theory.

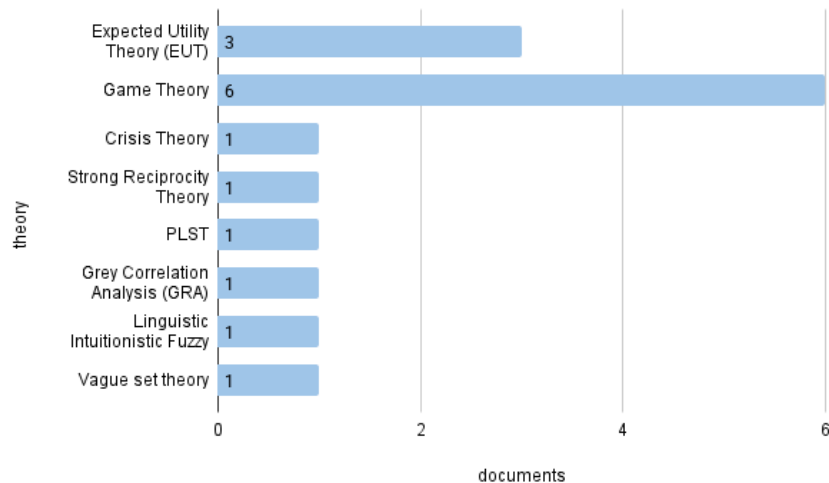


Figure 7. Theories/model integrated with prospect theory in selected studies

Figure 7 shows the various theories. From the results of data extraction and analysis, 8 theories or models can be found that can be integrated with prospect theory. Among the eight theories and models, the most dominant is Game Theory and followed by Expected Utility Theory (EUT).

5) Subject Area Deployment

In accordance with RQ3, the last category analyzed was the distribution of the subject of the research area. Figure 8 shows that the most research carried out in the field of economics is in accordance with the initial concept of prospect theory. However, it can be seen that research in other subject areas is also quite varied.

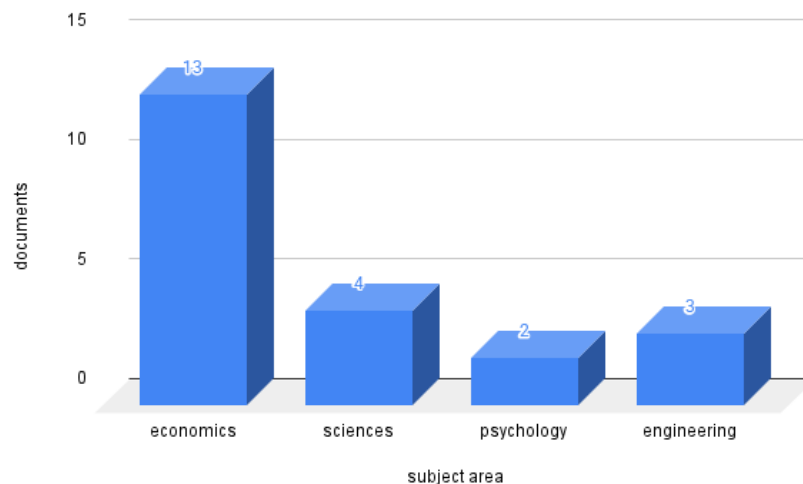


Figure 8. Studies distribuituion in different subject areas

4.2 Answering the Research Questions Asked

1) RQ1 How has temporal prospect theory developed in the last five years?

Since its introduction in 1979, prospect theory has been increasingly developed and widely used, especially in explaining behavior in decision-making. In this study, the researcher chose a specific time period, 2021-2025, to see and analyze the development of temporal prospect theory in that time period. The results in the selected

literature can be seen in Figure 4, prospect theory is consistently used every year, except in 2025 because the research begins in the third quarter of 2025. This shows that prospect theory is still relevant to be used today.

2) RQ2 What is the field of study that uses lead theory the most in its research?

At the beginning of its introduction, prospect theory was created to explain economic and psychological behavior in decision-making. However, along with the development of understanding of prospect theory, various fields of study have also applied prospect theory in their research, Figure 7 shows that in addition to the field of economics, other fields of study such as science, and engineering. For more details, these fields of study also include political science, communication science, social psychology, and others. This shows that the development of prospect theory is relevant to research in the field of study.

3) RQ3 What is the current state of prospect theory in academic literature?

Based on the results of the previous descriptive analysis, we can see that the prospect theory has developed considerably compared to the first time it was proposed in 1979. The results of qualitative research from the selected research resulted in the development of theories and model frameworks made based on prospect theory. Cumulative Prospect Theory and 3rd-generation Prospect Theory (3-PT) are some of the developments of prospect theory.

Research shows that prospect theory is influential in research in various countries. In the last five years, the countries found to be the most active in using and developing prospect theory are China and the United States, as illustrated in figure 5. This shows that prospect theory is still very relevant in the development of research in these countries.

5. Conclusion

Prospect theory is a behavior theory that is very influential in explaining decision-making under risk. Since it was first created by Kahneman and Tversky, prospect theory has undergone many developments in its application and understanding. Until now, prospect theory has even been used in cross-fields such as social sciences, engineering, and others. The application of prospect theory also shows consistent and increasing use every year. Thus, it can be concluded that prospect theory is still very relevant today in the field of economic science and is expected to continue to develop and can be used across other fields of study.

Reference

- [1] D. Kahneman and A. Tversky, "Prospect Theory: An Analysis of Decision Under Risk," 2013, pp. 99–127. doi: 10.1142/9789814417358_0006.
- [2] N. C. Barberis, "Thirty Years of Prospect Theory in Economics: A Review and Assessment," *Journal of Economic Perspectives*, vol. 27, no. 1, pp. 173–196, Feb. 2013, doi: 10.1257/jep.27.1.173.
- [3] A. Tversky and D. Kahneman, "Advances in prospect theory: Cumulative representation of uncertainty," *J Risk Uncertain*, vol. 5, no. 4, pp. 297–323, Oct. 1992, doi: 10.1007/BF00122574.
- [4] J. Gisbert-Pérez, M. Martí-Vilar, and F. González-Sala, "Prospect Theory: A Bibliometric and Systematic Review in the Categories of Psychology in Web of Science," *Healthcare*, vol. 10, no. 10, art. no. 2098, 2022, doi: 10.3390/healthcare10102098.
- [5] W. U. Khan, A. Shachak, and E. Seto, "Understanding Decision-Making in the Adoption of Digital Health Technology: The Role of Behavioral Economics' Prospect Theory," *Journal of Medical Internet Research*, vol. 24, no. 2, art. no. e32714, 2022, doi: 10.2196/32714.
- [6] S. Gächter, E. J. Johnson, and A. Herrmann, "Individual-level loss aversion in riskless and risky choices," *Theory and Decision*, vol. 92, no. 3, pp. 599–624, 2022, doi: 10.1007/s11238-021-09839-8.
- [7] D. Zeif and E. Yechiam, "Loss aversion (simply) does not materialize for smaller losses," *Judgment and Decision Making*, vol. 17, no. 5, pp. 1015–1042, 2022, doi: 10.1017/S193029750000930X.
- [8] R. Chark and B. King, "Loss aversion in hotel choice: Psychophysiological evidence," *Journal of Hospitality & Tourism Research*, vol. 46, no. 1, pp. 6–28, 2022, doi: 10.1177/10963480211025339.
- [9] S. G. E. Lim and C. M. Ok, "A percentage-off discount versus free surcharge: The impact of promotion type on hotel consumers' responses," *Tourism Management*, vol. 91, art. no. 104504, 2022, doi: 10.1016/j.tourman.2022.104504.
- [10] R. Louhichi, J. Pelletan, and M. Sallak, "Application of Prospect Theory in the Context of Predictive Maintenance Optimization Based on Risk Assessment," *Applied Sciences*, vol. 12, no. 22, art. no. 11748, 2022, doi: 10.3390/app122211748.
- [11] H. Bleichrodt and O. L'Haridon, "Prospect theory's loss aversion is robust to stake size," *Judgment and Decision Making*, vol. 18, art. no. e14, 2023, doi: 10.1017/jdm.2023.2.
- [12] J. Hao, X. Gao, X. Yang, Y. Liu, and Z. Han, "A Decision-Making Method for Design Schemes Based on Intuitionistic Fuzzy Sets and Prospect Theory," *Symmetry*, vol. 15, no. 8, art. no. 1570, 2023, doi: 10.3390/sym15081570.
- [13] J. Su and Y. Sun, "An Improved TOPSIS Model Based on Cumulative Prospect Theory: Application to ESG Performance Evaluation of State-Owned Mining Enterprises," *Sustainability*, vol. 15, no. 13, art. no. 10046, 2023, doi: 10.3390/su151310046.

- [14] W. Zhang and Y. Zhu, "The Probabilistic Dual Hesitant Fuzzy Multi-Attribute Decision-Making Method Based on Cumulative Prospect Theory and Its Application," *Axioms*, vol. 12, no. 10, art. no. 925, 2023, doi: 10.3390/axioms12100925.
- [15] F. Hasan, U. N. Kayani, and T. Choudhury, "Behavioral Risk Preferences and Dividend Changes: Exploring the Linkages with Prospect Theory Through Empirical Analysis," *Global Journal of Flexible Systems Management*, vol. 24, no. 4, pp. 517–535, 2023, doi: 10.1007/s40171-023-00350-3.
- [16] A. S. L. Tse and H. Zheng, "Speculative trading, prospect theory and transaction costs," *Finance and Stochastics*, vol. 27, no. 1, pp. 49–96, 2023, doi: 10.1007/s00780-022-00494-7.
- [17] G. Lin, M. S. Lin, and H. Song, "An Assessment of Prospect Theory in Tourism Decision-Making Research," *Journal of Travel Research*, vol. 63, no. 2, pp. 275–297, 2024, doi: 10.1177/00472875231171673.
- [18] R. Xia, S. Tong, Q. Wang, B. Sun, Z. Xu, Q. Liu, J. Yu, and F. Wu, "Research on a Three-Way Decision-Making Approach, Based on Non-Additive Measurement and Prospect Theory, and Its Application in Aviation Equipment Risk Analysis," *Entropy*, vol. 26, no. 7, art. no. 598, 2024, doi: 10.3390/e26070598.