

Bibliometrics Analysis for Advancements in Economic Games

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This study presents the current tools used in empirical research over the last two decades. To select empirical and review papers that propagated the idea of employing economic games in the last five years, we used the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) framework and a bibliometrics analysis. To answer the research questions, we extracted and analyzed over a thousand documents from Scopus. In order to understand the evolution and application of economic games, analyzing the progress, the fields of progress and the relevant advantages of the same in the Human Resource Management domain will be the problems looked at in this study.

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Introduction

Understanding the trends and advances within diverse academic subjects requires a bibliometrics study. Scholarly publications, citations, and other bibliographic information can provide important information on the development, influence, and linkages of knowledge in certain fields. Economic games and human resource management (HRM) trends are two separate but related fields that are the subject of this study's bibliometrics investigation.

Economic games, commonly referred to as experimental economics, have become an effective method for examining how people behave in diverse economic settings. Researchers may monitor and examine how people make decisions by playing these games, which offer a controlled environment where players can engage strategically and make judgments. Researchers obtain insights into economic principles, personal preferences, and other topics

by measuring the results of these studies. Researchers learn more about economic theory, personal preferences, and the dynamics of social interactions by measuring the results of these studies. On the other hand, as a result of technical improvements, shifting demographics, and altering organizational dynamics, HRM trends have seen major changes recently. HRM practices and strategies are always developing to suit the demands of a fast-changing workforce as organizations fight to recruit and keep top personnel. Because of this, organizations must have a thorough awareness of the most recent trends and advancements in the HRM area in order to make wise decisions and put in place productive people management strategies.

By utilizing bibliographic data from a variety of sources, we intend to study the scholarly landscape of economic games and HRM trends in our bibliometrics investigation. By systematically analyzing relevant publications, including journal articles, conference papers, and research reports, we can identify key authors, institutions, and research themes that have shaped these fields over time. Additionally, by examining citation patterns, co-authorship networks, and publication trends, we can gain insights into the intellectual influence, collaborations, and emerging areas of interest within these domains.

Economic games are acknowledged as experimental paradigms for social decision-making modeling. A substantial amount of study has drawn attention to the diverse behavior that may be seen in many of these games, which may be

partially explained by general tendencies toward interpersonal traits. We examine the role of personality in two major classes of economic games: social dilemmas and bargaining games, using the Big Five and HEXACO (Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience) personality theories. This demonstrates an emerging function for Big Five agreeableness, consistent with its fundamental quality of preserving harmonious interpersonal relationships, in encouraging cooperative, egalitarian, and altruistic actions across a variety of games. (Zhao K et al, 2016)

Theoretical and empirical connections between personality psychology and economics are becoming more and more popular.

Extraversion's function is less obvious, which may be due to the conflicting impacts of its agent and affiliative motivational underpinnings. Theoretical and empirical connections between personality psychology and economics are becoming more and more popular. Due to this, an integrated framework for the study of behavioral heterogeneity has developed, and various new research directions have resulted (Brandstätter et al, 1999; Ferguson et al, 2011)

Among these is the creation of ecological models of personality to explain the formation of traits and how they interact with incentives and preferences

(Brandstätter, 2001; Ashton et al, 2007; Ashton et al, 2014)

Several studies have looked at the relationships between personality traits and economic preference variables (e.g., risk, temporal, and social preferences; (Brocklebank et al, 2011

Objectives of the Study

The main objective of this study is to provide a current status of research advancements in economic games and the ability to accurately predict human behavior using research data from prestigious journals published over the previous 20 years. To define the scope of the study, the following inquiries have been made:

- RQ1. What are the topics covered by publications in the application of economic games and experimental economics from 2002 to 2023?
- RQ2: Which authors, sources (Journals on Scopus, World of Science), and most productive nations are publishing the studies in the relevant field?
- RQ3: What is the intellectual structure for the subject at hand and its application in the human resource management field (co-citation, co-authorship, and co-occurrence)?
- RQ4. What are the current research areas in the field of recruitment and selection, and how are economic games able to augment conventional methods?

- RQ5. What is the progression of the application of experimental economics or economic games in the field of the recruitment and selection process of an organization?

Methodology

The purpose of the study is to demonstrate how the fields of economic games and experimental economics have developed and how they can be applied to human resource management. For the past 20 years, from 2002 to 2023, Clarivate Analytics has studied the development of the field's research in the top journals that are indexed in the Scopus database. Since Scopus has the most journals on the subject of concern, the decision to use its data was made in accordance with the relevance of the papers to the topic. A major source of elimination of the articles or papers while doing it manually was to limit the scope of the study to understand the behavior of people in economic games or related to the recruitment of various organizations where economic games can be effectively employed in order to gauge the behavioral traits of people. For this, a scientific mapping analysis, widely known as the SMA technique, and a quantitative bibliometric analysis have both been conducted. The database was searched using a search query created based on the requirements of the study, and the results were filtered in accordance with the analysis's actual needs.

Data Analysis Structure

The current study analyzed the body of literature on economics games and its

applicability in the HRM field using bibliometrics and SMA as well as network analysis. The study's methodology is broken down into five steps that are based on the suggestions made by Aria and Cuccurullo (2017) and Firdaus et al. (2019). The design of the study is followed by visualization and conclusion interpretation as part of the methodological flow.

Study Design: To lay the groundwork for the bibliometric analysis of the literature and further scientific mapping analysis of the same, the research questions are defined.

Data Collection: Based on the search query, meta-data from the best journals has first been identified, and the results have then been condensed using filters for document type, language, and categories.

Data Analysis: The 'biblioshiny' application of the 'Bibliometrix' package of the 'R studio' is frequently used for the analysis of bibliometrics.

Data Visualization: To create a visual representation of the clusters among various documents of citations while making use of bibliographic coupling, social networks among top authors have been created. These networks include co-occurrence networks for the identification of various thematic clusters and citation networks for various studies.

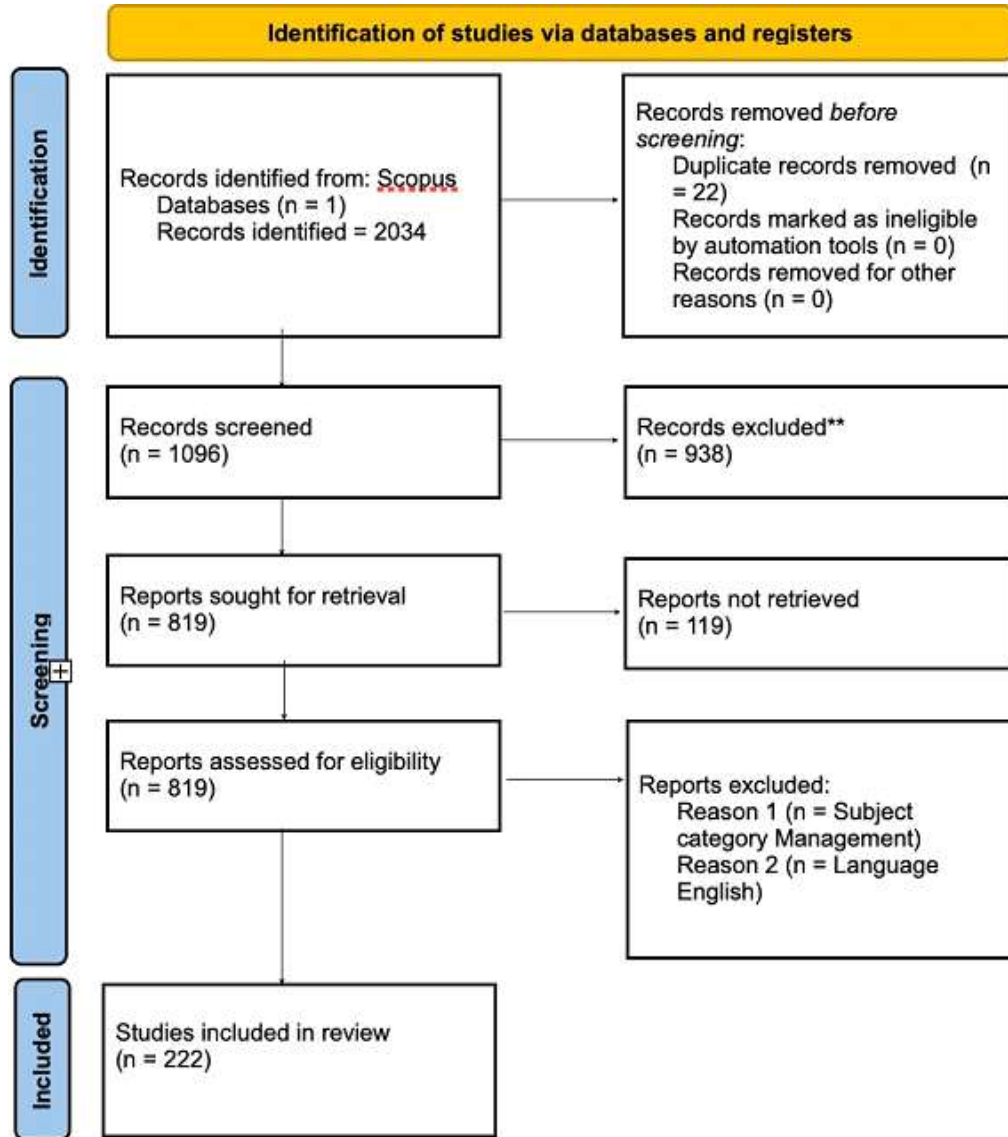
Interpretation: The study's concluding section discusses how the research findings should be interpreted.

When determining the research gaps, this methodological flow is the methodology that is most frequently recommended for incorporating recent studies.

Data Inclusion: To be able to execute a comprehensive analysis on the subject "Economic Games/Experimental Economics and Human Resource Management and Recruitment and Selection," the title was entered with the area as Business, Management, and Accounting. To be able to execute a comprehensive analysis on the subject "Economic Games," it was entered in the title with the areas of business, management, economics, and psychology. The records eliminated from our study on the grounds of language restriction (English Limited) and the articles that have already been completed were shortlisted, while others were eliminated as they were not directly related to the subject of interest; instead, the study was studying some aspects of economic games instead of their active application in real life. Some papers, however, are important as a foundational base for the research; hence, they were retained as they were later employed in some research carried forward at a later stage. As a result, in the end, the shortlisted records were 222 in total (Fig. 1).

As we can observe from Fig. 2 there has been a major peak in the scientific production on the subject due to the exemplary works of authors such as Kahneman, Tversky, and Thaler that have drawn the attention of academi-

Fig. 1 PRISMA Representation of the Study



cians to the scope that economic games provide useful insights of an individual, which helps derive an objective understanding of the topic rather than the self-reporting questionnaires that do not provide as much value.

Average Citations per Year

As is evident from Fig. 3, the average article citation has been on a slow rise ever since 2006–2008; however, a few of the prominent papers have cita-

Fig. 2 Annual Scientific Production

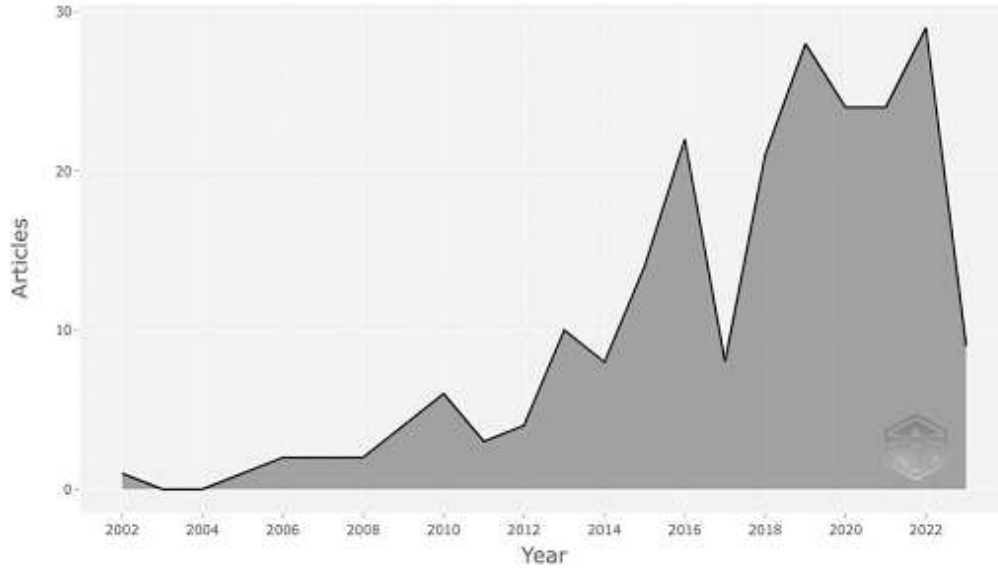
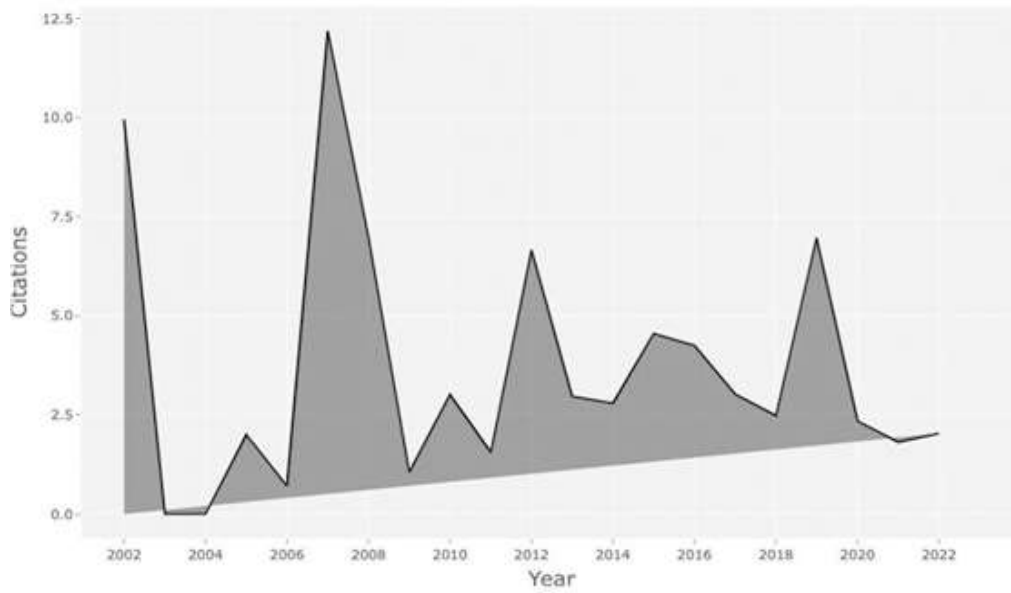


Fig. 3 Average Article Citations per Year

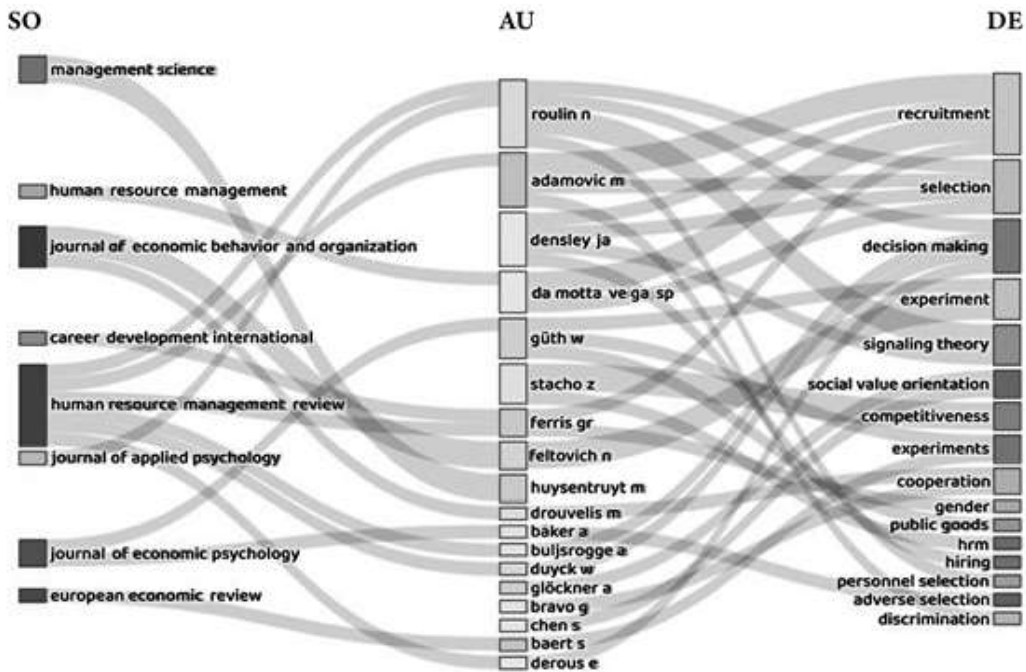


More work on the same subject can be seen with the ever-increasing average of the same.

tions way higher than average, which might skew the data when we look at the figures. However, more work on the same subject can be seen with the ever-increasing average of the same.

Subsequently, after examining Fig. 4, we can see that the major contribution in terms of sources is by the Journal of Economic Behavior and Organization and Human Resource Management Review, while the prominent authors stand to be Roulin and Adamovic with regard to the keywords in question.

Fig. 4- Three Fields Plot



As we can observe from Fig. 5, the most relevant sources on the subject in question are the Journal of Economic Behavior and Organization, the Human Resource Management Review, and the European Economic Review, in descending order by the number of articles published on the subject.

Whereas in Fig. 6, we can observe the maximum value of h is still at 6 which could be the result of insufficient research in the field or researchers believing in different facets of the research in that field as important, which prompts the need to probe for more conclusive studies on specific subjects of relevance within the field.

Fig. 5- Most Relevant Sources

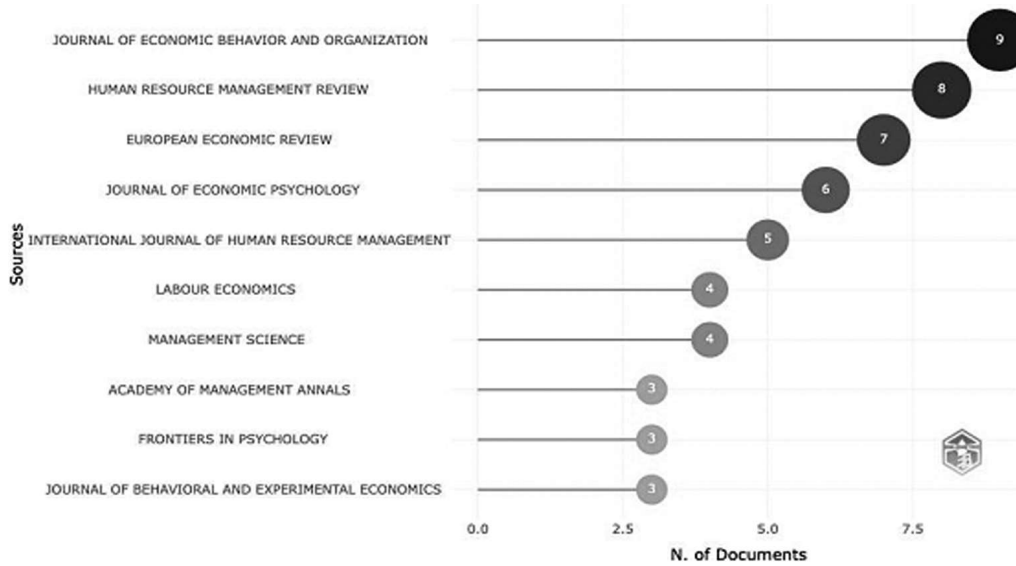


Fig. 6 -Source Growth by H index

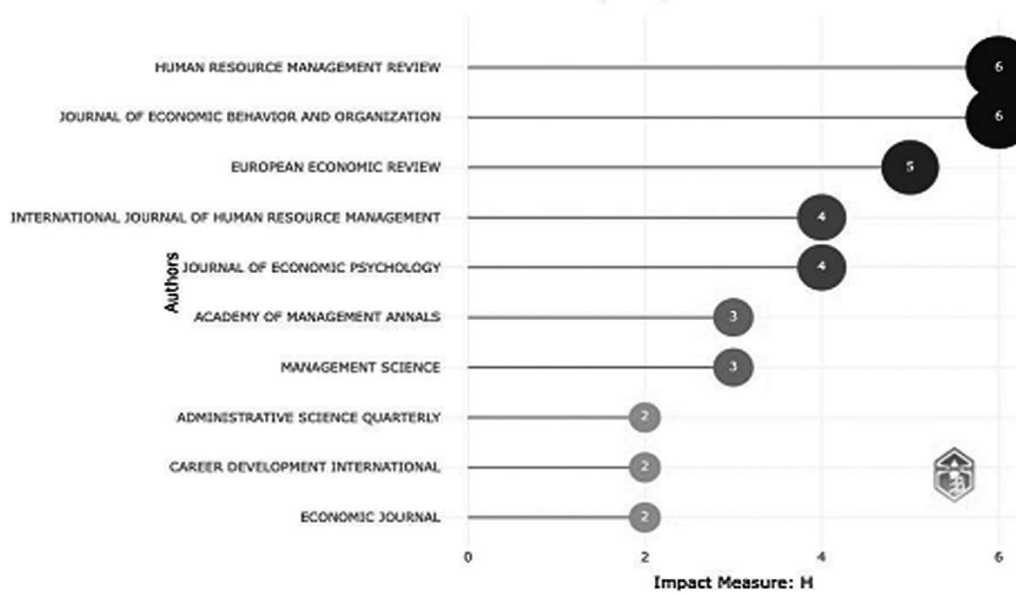


Fig. 6 indicates the journals that have actively been publishing on the subject in question. Out of these, even though the cumulative documents are on the lower

side, the Journal of Economic Psychology has been on the same since 2002. Whereas in terms of the highest cumulative number of documents published on

the same, the Journal of Economic Behavior and Organization, which we have been seeing at the top in terms of articles published, has done better than the others due to the niche they operate in.

After studying Table 1 as well as the schematic representation, we can see that the USA, UK, and Germany have the highest contribution to the field, which

Where there is still so much scope for studying the same.

can also be attributed to the authors in question, whereas India stands at the end of the table where there is still so much scope for studying the same. It is more relevant for India due to the diverse cultural backgrounds that exist within the country itself.

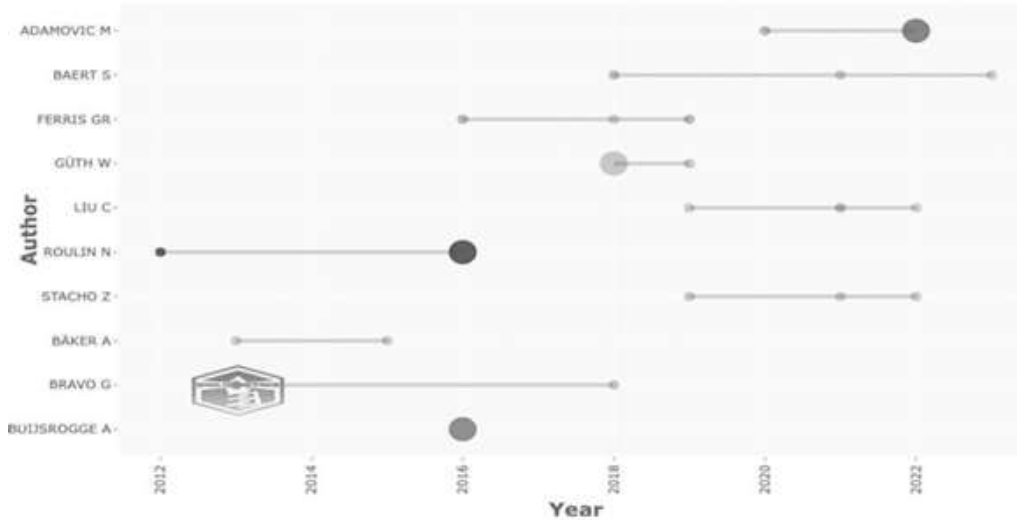
Table 1- Country-wise Scientific Production

region	Freq
USA	159
GERMANY	87
UK	44
AUSTRALIA	30
NETHERLANDS	28
CHINA	23
ITALY	22
CANADA	20
FRANCE	19
BELGIUM	14
MALAYSIA	11
PAKISTAN	11
SLOVAKIA	11
INDIA	10
TURKEY	10
SPAIN	9
SWITZERLAND	7

As is evident from the study and the data provided, Adamovic, Baert, Ferris, Guth, lie and Roulin stand to be the most prominent contributors in this

field of study having produced 3 papers on the same sharing the position with authors like Bravo and more recently Zhao Kun. Signaling Game” where he

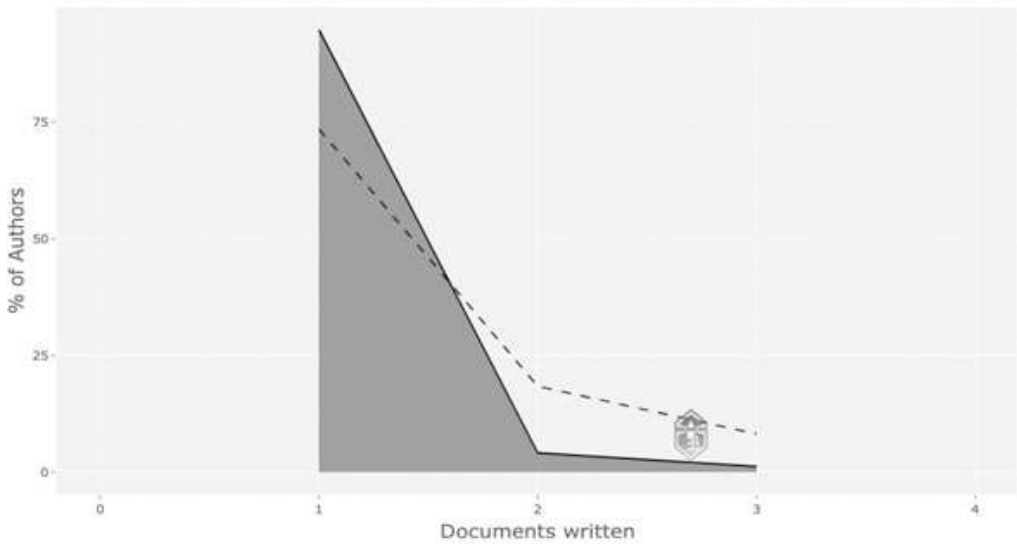
Fig. 8 Top Authors' Prouction over time



made distinctions between adaptive connections between applicants and organizations, among applicants, and among organizations by using signaling theory to the process of hiring new employees. Repeated acts of adaptation and counter-adaptation between actors in each scenario have the potential to result in equilibrium

or escalation (arms races). He demonstrated how an understanding of both traditional and little-studied micro- and macro-level selection processes and their dynamic interactions is made possible by considering personnel selection as a network of adaptive links among labor market participants.

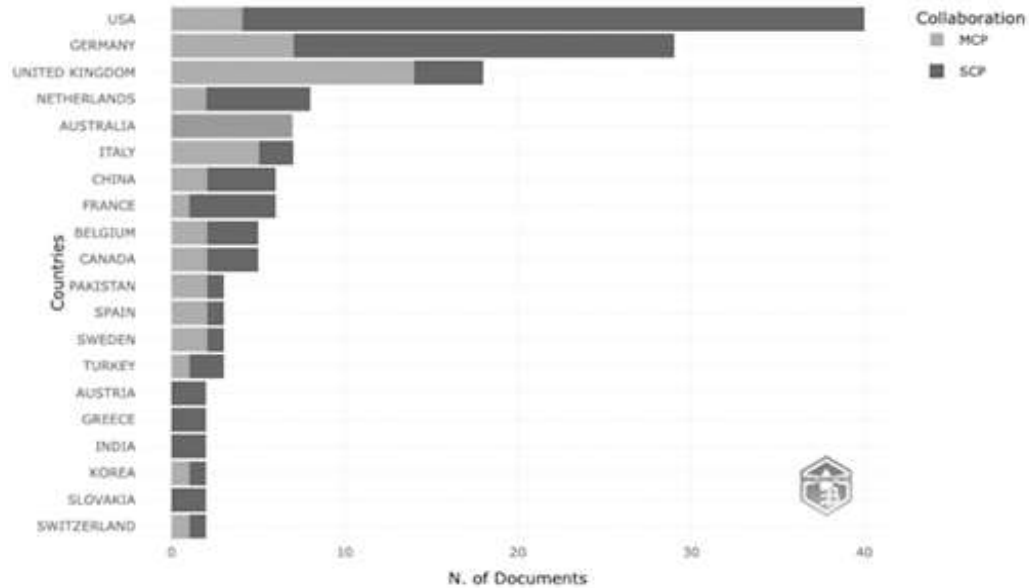
Fig. 9 Frequency Distribution of Scientific Productivity



we can observe that about 80% of multiple authors have contributed at least one article and then subsequently for 2 documents falls to 3% which prompts us to investigate why are not multiple au-

thors contributing to the subject in question. Partially it is because they study one aspect of the games without the application or suggest the applications as the scope of the current research.

Fig. 10- Corresponding Authors Country

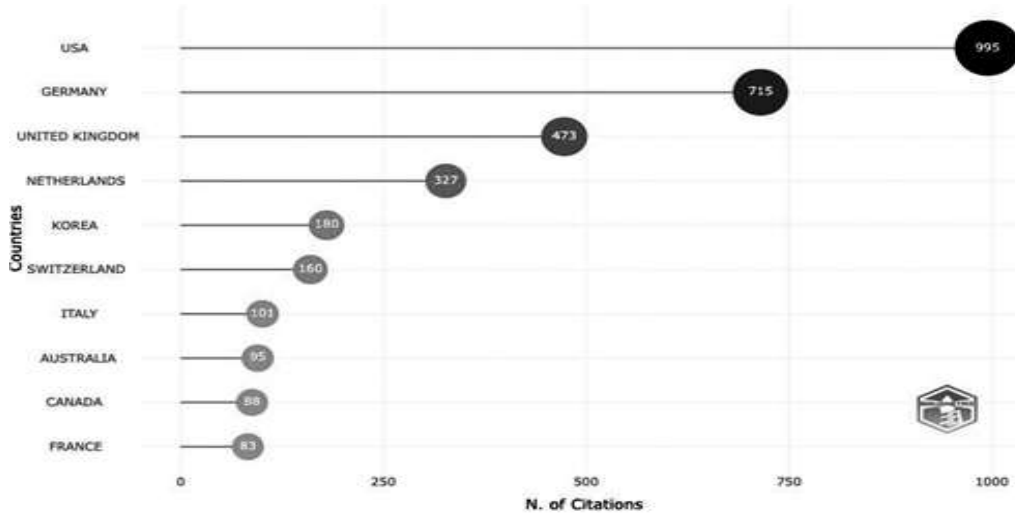


Moving on to the corresponding author's country as is shown in Fig. 10, we can see that USA, Germany, UK and Netherlands have the highest Single country contributions as well as Multiple country contributions which indicates that a substantial amount of study has gone on the subject. India mostly has single-country contributions which are centered more around the economic games in-

India mostly has single-country contributions which are centered more around the economic games instead of the application of the same.

stead of the application of the same. As far as groundbreaking research goes, with the help of Fig. 11 we can see that, the most number of citations from countries clearly shows that the USA and Germany are two countries where this subject has been given the primary focus that leads the front by a large margin whereas the United Kingdom and Netherlands have shown progress in a positive direction with the rest trailing at less 200 citations. The literature review (Fig. 12) revealed that Strohmeier (2007); Abeler (2019) and Price Me (2002) have the highest number of citations due to the nature of the study in the aforementioned articles.

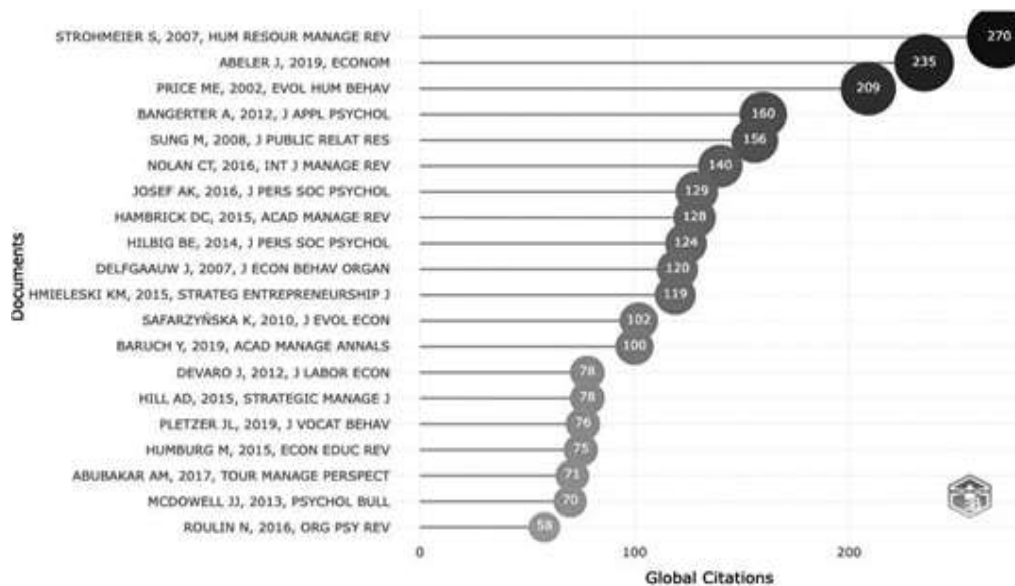
Fig. 11 - Most Cited Countries



These have been groundbreaking in terms of the usage of economic games as an indicator and the application of the same in predicting behavior. It is important to note that even though au-

thors like Fehr had already started to recognize behavior in economic games or tried looking for explanations of certain decisions that humans make even if they seem irrational or sub-optimal,

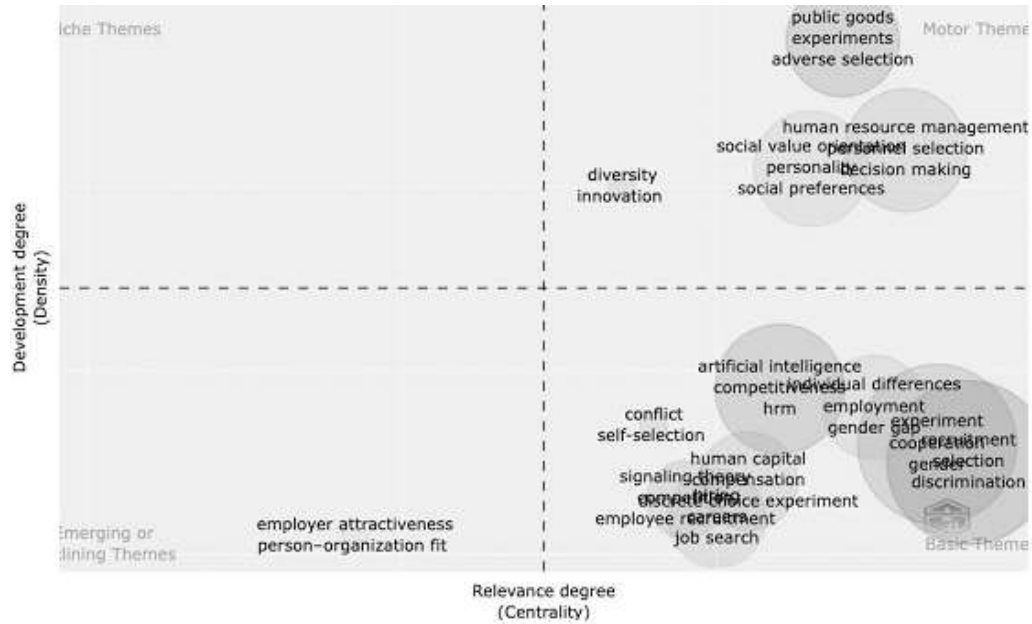
Fig. 12 -Most Global Cited documents



the explicit link between human behaviors and patterns in economic games have been thoroughly studied much later after behavioral economics got

the well-deserved popularity challenging the homo economics assumptions that was usually applied in experimental economics.

Fig. 13. Thematic Map



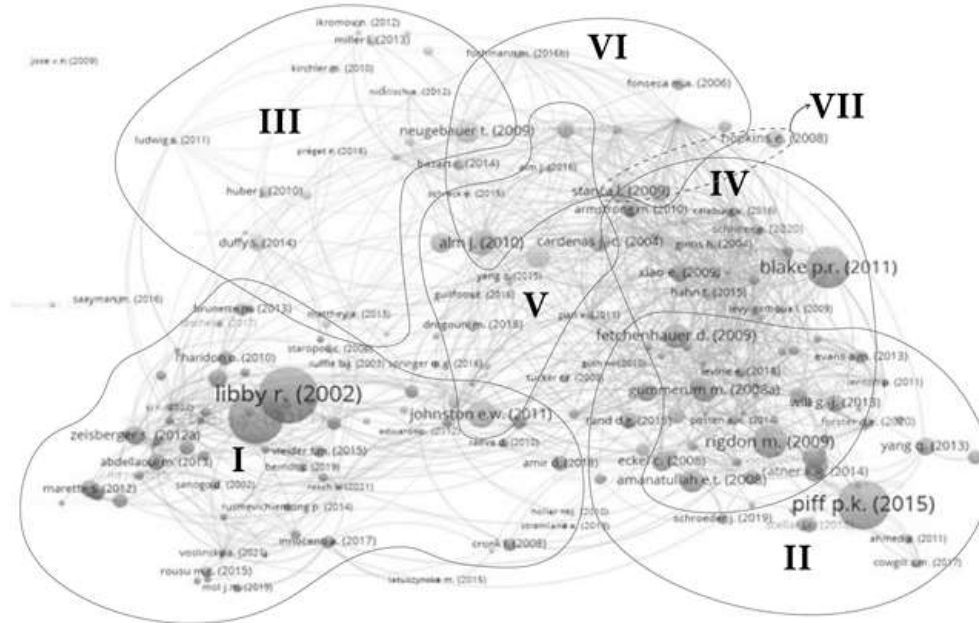
Thematic Map Evolution

Fig. 13 is a graphic representation of the relevant themes mentioned in the data set used for this bibliometric analysis. The relevance degree is depicted on the x-axis and the development degree on the y-axis. The top left quarter is of niche themes. It can be seen that no niche themes are mentioned in the data set. The bottom left quarter talks about the emerging themes that involve the application of AI, conflict resolution and other economic games with application to the real business world. As far as the emerging themes are concerned, with the tech bubble bursting it has become even more

critical to study the employer attractiveness person-organization fit in terms of Motor themes which include, public goods experiments, social preferences of the individual, selection and decision making of the individuals expressed in terms of economic games.

Initially, as we can observe, the focus was on just collecting experimental data and applying it to other situational conditions whereas now it revolves more around gamification of processes and systems within the recruitment and selection or resource management part to gain more objective measures on the behavioral aspects of the individual.

Fig. 14 Cluster Analysis



Cluster Analysis

Cluster (I)

This cluster talks about the financial communications, risk-averse investors and their loss probability aversion (MLPA). Cluster red also talks about how loss probability is not important in this dynamic context of MLA and MLPA.

Cluster (II)

This cluster talks about how different emotional responses have different generousities in different economic games and how the natural induction of different emotional responses helps in the development of different social behaviors.

Cluster (III)

This cluster talks about the contribution of partners in repeated games and selfish-biased conditional cooperation. Also focuses on the relationship between the cognitive resources and deliberation on the choice.

Cluster (IV)

Blue cluster talks about giving behavior and how the strength of a social cue is responsible for giving behavior and how weak social cues got manipulated by the dictator games. Also, how players sacrifice rewards in order to prevent inequity.

Cluster (V)

It is important to understand all the mechanics involved in the selection of partners and group extraction; the game was used to explore how rules, formal and informal, emerge and how individual behavior responds to regulatory mechanisms aimed at solving the dilemma.

Cluster (VI)

The sky-blue cluster talks about tax compliance and how tax administration consider taxpayers as identical taxpayers might have horizontal inequities because of their tax compliance decisions and this reciprocity can be both horizontal and vertical.

Cluster (VII)

Treatment of different kinds of reciprocity like generalized indirect reciprocity and social indirect reciprocity is important to understand also how direct reciprocity can be a benchmark for all other reciprocities as social conviction has the potential to turn into norms.

Findings & Discussion

The objective of this study comprises questions that help us understand the application of economic games as a predictor of real-life behavior in order to assess the candidates.

One of the prominent areas of the study has shown the consistent behavior of individuals as to how they play in the game when compared to real-life sce-

narios. Behavioral assessment can be applied across industries if the desired behavioral traits are assessed more objectively, as mentioned regarding different stages of the employee cycle in the organization.(Antonio et al, 2017; Baumert et al, 2014). Extrapolating further, these can be explored to design assessments or games that focus on ethical issues such as important positions in the government, central institutions, or critical positions in corporations where technical expertise is undoubtedly crucial, but values like ethics and greed can be explored as well. Other applications include using the same techniques for critical government positions to understand the scope of any misuse of power. (Benabou et al, 2004; Ferguson et al, 2011; Sicora, 2015)

For objectivity to prevail, each candidate should share a consistent level of knowledge and constraints, so the design of games needs to incorporate the subjective differences for that particular role.

The limitations would include different departments where different behaviors become more critical as they would need to study separately, while there's also a variance in behavior as to how players respond to such assessments. For objectivity to prevail, each candidate should share a consistent level of knowledge and constraints, so the design of games needs to incorporate the subjective differences for that particular role. (Terracciano et al, 2003; Blanco et al, 2011).

Since this field of study is very nascent, further investigation is needed before the connections between personality and social decision-making that have been found to exist are deemed reliable. Yet, consistent with its primary characteristics of preserving interpersonal harmony, agreeableness does seem to have a role in encouraging violent and prosocial conduct. Less obvious are the results for extraversion, which may be a combination of its varied affiliative and agentic motivational components. How personality qualities influence prosocial conduct is consistent, but the degree of the personality role varies among games, depending on structural and situational factors, and is occasionally undermined by differences in personality assessments and methodology. (Blanco et al, 2011; Fehr et al, 1999; Gollwitzer, 2005; Zhao et al, 2014) These results are significant for a variety of reasons. They first go beyond the limited and specialized metrics of prosocial conduct and cooperation that have hitherto dominated the research. Via the common currency of the Big Five/HEXACO personality tests, individual variances from economic games can be viewed within a broader psychological context, allowing for explanatory techniques and ties to wider behavioral applications. For instance, According to Smith et al. (2017) and Johnson & Smith (2015), the results of the laboratory on agreeableness, extraversion, honesty, and humility reflect behavioral traits observed in daily life. The congruence between regulated lab environments and actual behavioral patterns reinforces the construct validity of characteristic measurements, confirming the

dependability and precision of personality evaluations. Furthermore, by proving personality trait measures' predictive and explanatory potential outside the boundaries of self-report techniques, our findings highlight the personality trait measures' wider utility (Roberts et al., 2016). By demonstrating the significance and usefulness of trait measures in comprehending and forecasting human behavior, these findings strengthen the body of research on personality science. Because of the long-standing legacy of a universal "Homo economicus" and ideas about the lack of cross-situational behavioral consistency, there has historically been minimal interaction between the sciences of economics and personality psychology (Thaler, 2015). The results discussed here are consistent with a substantial body of research showing that significant social and economic consequences can be influenced by broad and persistent personality traits (Borghans et al, 2008; Roberts et. al, 2007; Barrick et al, 1991). Moreover, longitudinal studies have shown the persistence of personality effects over time, while mounting research has highlighted the genetic foundation of consistent individual differences in gaming behavior. (Caspi et al., 2001; Cesarini et al., 2009; Roberts et al., 2000)

Significant social and economic consequences can be influenced by broad and persistent personality trait.

Also, the papers examined here demonstrate a significant transition in trait psychology from simple description to

explanatory models (Trapnell et al., 1990; McCrae et al., 1989). These behavioral approaches have contributed to the development of theoretical viewpoints regarding the structure of significant personality traits by using economic games. The works in this review have provided empirical testing of basic postulates using well-established behavioral paradigms.

The subjects at hand from the above analysis are as follows:

1. Consistency in Behavior

The surprising consistency in individual behavior when playing economic games compared to their real-life decision-making scenarios is one of the study's key results. This reliability shows that behavioral evaluation techniques, such as economic games, might offer insightful information about potential candidates' performance in diverse organizational roles. (Fehr et al., 1999; Barrick et al., 1991, Camerer et al., 2003)

2. Broad Applicability Across Industries

The study emphasizes the possibility of using these behavioral evaluation methods in a variety of businesses. Insights from economic games can be generalized to develop evaluations for occupations that include crucial ethical issues, despite that the study's primary focus was on different phases of the employee life cycle inside organizations. These include roles in government, national organizations, and businesses that require

more than just technical competence but also values like ethics and the potential for greed are vital.

3. Ethical Considerations:

According to the study, economic games may be modified to address moral issues in a variety of high-impact positions. This application has broad ramifications, particularly for positions in government where there is a chance that authority may be abused. Assessments and games aimed at measuring ethical behavior may help these important positions play their decisions with greater responsibility.

4. Role-Specific Variations

The universality of these behavioral tests does, however, have certain inherent limits that must be acknowledged. It is essential to research and create economic games that are tailored to each function since different roles and departments may prioritize different behaviors. It could be difficult to capture the subtle differences in behavior necessary for different professions using a one-size-fits-all approach.

Subjective Variations

The study also emphasizes how important it is to take into consideration applicants' subjective differences. Every

Every person brings their own set of expertise, limitations, and values to the table.

person brings their own set of expertise, limitations, and values to the table. Therefore, to maintain the objectivity of assessments for certain jobs, the design of economic games should be adaptive to include these subjective aspects while also including a component where the candidate can express the rationale behind the decision making within the games.

Enhancing Prediction Capabilities

Given these results, it is obvious that further research into other economic game variants is required to increase the prediction power of workforce evaluations. The capacity to evaluate and anticipate candidate behavior becomes increasingly important as industries change and new issues emerge. Organizations may better discover applicants who possess not only the essential skills but also the right personality by creating custom economic games that take individual variations and role-specific subtleties into consideration. (Zhao et al., 2014)

This study's findings highlight the potential of economic games as an effective tool for forecasting actual behavior in a variety of businesses. The findings emphasize the significance of more studies and development in this sector while acknowledging the necessity for role-specific adaptations and the consideration of individual variations. Making economic games more predictive will considerably improve workforce evaluation and skill development, which will ultimately result in better-informed and more efficient recruiting decisions.

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