The Use of Statistics in Economic Rent Research

Mr. Kwabena Ampong[1*] and Mr. Samuel Apau[2*]

Finance Office, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
ampongk@gmail.com

School of Business and Creative Industries, University of the West of Scotland, Paisley, UK
samuelapau61@gmail.com

Abstract: The main thrust of the study was to undertake a review of some of the statistical techniques that have widely been used in the area of Economic Rent (ER) Research. Articles related to ER were attained from the Scopus database using the Boolean search as well as the Google Scholar search engine. Several inclusion and exclusion steps were critically respected to achieve the appropriate articles for the study. It became evident that several Economic Rent researchers between 2018 – 2022 have depended heavily on the use of quantitative research strategy and also on qualitative data analysis techniques. The outstanding statistical technique was regression analysis, thematic analysis, and content analysis. The study recommends that more rigorous quantitative studies and quantitative analysis techniques should be conducted to foster the practicality of the economic rent concept and model.

Keywords: Economic Rent, statistics, thematic analysis, Content analysis

1. Introduction

The most basic form of statistics is inseparable from research, including economic rent research. Statistics does more than only reflect facts with numbers; it also communicates study findings, supports hypotheses, and gives research methods and conclusions credibility. From sciences to humanities, statistics plays a critical role in research. In any circumstance, statistics provide a foundation for explaining uncertainty and variation. Statistics is a science that, without a doubt, cannot be overlooked in any field of study. If statistical research wasn't available, we wouldn't be able to acknowledge new discoveries, respond to fresh inquiries, or safely move forward with new developments. The research method to be used for valid results will be influenced by the type of data being collected and evaluated by the researcher (Sutton, 2015). Research methods have been divided into two branches: quantitative and qualitative research methods.

In qualitative research, non-numerical data is studied. Qualitative research findings explain relationships and provide rankings like acceptable, good, and excellent (Barnham, 2015). Quantitative research is based on numerical data. To put it another way, it's something that can be counted. Quantitative research is characterized by systematic experimental investigation of phenomena using numerical representations such as percentages (Mishra & Alok, 2017). The question of scale versus depth is the key distinction between qualitative and quantitative research methods (Elkatawneh, 2016). Deductive reasoning, in which inferences can be drawn, is frequently utilized in quantitative analysis (Burney & Saleem, 2008). Qualitative analysis, on the other hand, allows for a more flexible and open-ended approach to evaluation (Mehrad & Tahriri, 2019). Quantitative research, according to Tavakol & Sandars (2014), yields more accurate results than qualitative research.

The qualitative analysis methodology provides comprehensive information on people and about real-life situations (Leedy & Ormrod, 2014). The use of data theory enables the researcher to construct and re-create hypotheses based on the data obtained, as opposed to simply studying the data produced by other scientists. Nonetheless, the findings can only be applied to the specific group of people investigated (Johnson & Christensen, 2012). As per the study of Green (2014), users of the qualitative technique may employ a subjective framework that is erroneous, unreliable, and misleading. Again, it is claimed that qualitative technique users write fiction because there are inadequate means of verifying any truth of the claims that have been made. It is considered that the approach does not produce reliable and consistent data because it is characterized by emotions and personal accounts rather than employing quantifiable numbers (Atkins & Wallace, 2012).

With a quantitative method of data analysis, generalization is possible, according to Green (2014). The use of statistical data for explanations and interpretations of the study saves the researcher time and effort when describing findings. With quantitative analysis, the issue of bias in data collection or data analysis is practically avoided. The insights gained may also not be those of the individual's thoughts and opinions (Berg & Lune, 2012). The method does not engage or develop innovative, analytical, or creative thinking as a result of adopting established working strategies (De Vaus & de Vaus, 2013). Any evidence gathered is intended to support or refute predefined paradigms. Hence, may help to promote laws and facts that can stand on their own, regardless of whether they are true or not (Eyisi, 2016).

2. Statistics

Statistics as a science is an interdisciplinary field that allows for evidence-based and accountable economic rent research. As a result, the variety of decision-making techniques is not reliant on intuition. The two types of statistical methods are descriptive statistics and inferential statistics.
The descriptive statistics approach, as the name implies, are used to characterize quantitative data.

This description could be either visual (graphics) or numerical (numbers). Trends and patterns in ER data can be depicted using simple visualization tools like histogram, pie charts and bar charts.
Contract rent and investment rents are examples of how they can be used (Schwerhoff, Edenhofer & Fleurbaey, 2020). Inferential statistics, on the other hand, deals with extrapolating results from a sample to the entire population. These conclusions are based on assumptions that have been tested using analytical techniques. It would help economists to generate accurate forecasts regarding market power (De Loecker and Eeckhout, 2018), rent creation by politicians (Aidt, 2016), increasing inequality and declining investment/innovation (Mazzucato et al., 2020).

Statistics' relevance in the study and/or society cannot be underestimated. When there are effective techniques of obtaining information for improved forecasting or decision making, businesses and decisions cannot be operated based on trial and error (Ciuriak, 2020). The use of statistical techniques like regression and factor analysis allows for the creation of useful insights like predicting the influence economic rents has on business and economic development (Schwab & Werker, 2018),

The growth of quantification of decisions in several domains of individuals, firms and economies necessitates the careful application of numerical data (Ciuriak, 2020). Researchers stressed the importance of economic rents becoming more practical which suggests key implications on any modern economy (Schwab & Werker, 2018; Mazzucato, 2020; Ciuriak, 2020). The correlations between economic rents and its determinants as well as consequences has been efficaciously grounded in literature and differentiated through the usage of statistical tools and other experimental methodologies (Rodriguez, 2020; Leon, 2022). In spite of the growing knowledge of statistics in economic rent and its potential value to businesses and economies, few companies/governments make judgments based on independent data (Birch, Ward & Tretter, 2022).

Economic rent was defined by Varian (2006) as payments paid to a factor of production in excess of the minimum amount necessary to procure it. In the same vein, Schwerhoff (2019) terms economic rent as payments made to a good or service that are in excess of the minimum payment necessary for supply to take place. Two further definitions of rent are provided by Piketty (2014). The first is referred to as an income on capital, whether in the form of rent, interest, dividends, profits, royalties, or any other legal category of revenue, as long as such income is simply compensation for asset ownership, independent of any labor. The second definition refers to any market flaw or excessive or illegitimate profit.

Since the curves are not entirely elastic, the surplus obtained by either side of the trade is another type of rent. The surplus is typically seen as a legal type of benefit. However, as the example below shows, there are occasions when there is little distinction between the excess and rent. Consider an industry where businesses are able to externalize part of their costs as well. Even in the case of perfect competition, this raises their excess (as well as consumer surplus), but it is not the most advantageous method from a societal standpoint. Because of this, one may always assume that some of the producer and consumer surplus stems from externalized expenses (such worker health issues), which is a kind of rent-seeking.
Bilateral trade negotiations are a further context in which comparable rents may manifest. Rents in this situation might be defined as the advantage that any party receives above and beyond the subject of contention. In typical circumstances, this gain is fairly similar to surplus. But rent seeking happens when a side wants to increase its bargaining power, and one may also spot a type of rent when one party has a larger bargaining power because of specific positional advantages (e.g., wealth that decreases risk aversion).

When knowledge is unequal among agents and certain agents can gain an advantage by keeping their information private, a rent is seen in a third scenario. When high-type (for example, highskilled or high-risk) agents are able to gain an advantage from their capacity to emulate low-type agents' observable behavior, this type of informational rent is ubiquitous in adverse selection.

The relationship between ER and specific sectors has been established (Birch, 2022; Espinosa, 2021), according to available research, whereas other studies have looked at it under prominent themes (Leon, 2022; Garang, 2021; Warnecke-Berger, 2020) or definite components of economic rent including political rent, investment rent (Antonelli & Gehringer, 2017), natural monopolies and market power (De Loecker and Eeckhout, 2018). This study intends to fill this research gap by demonstrating the value of statistics in economic rent research in terms of financial advantages, competitiveness, and politics for both firms and governments.

3. Methods

A thorough search was done to obtain articles that focused on economic rent research. The search query below was used in the Scopus database.

"TITLE-ABS-KEY ("Economic Rent") AND (LIMIT-

TO (PUBSTAGE , "final")) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-

TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-

TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) AND (LIMIT-

TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-

TO (EXACTKEYWORD , "Economic Rent")) AND (LIMIT-

TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j"))"

Using the search query above, the results displayed and interpreted below were gotten: Initial Search gave 374 articles; exclusion criteria was applied and the results reduced to 85, and topics which focused on Economic Rent were 46. Finally, 46 Articles were used for the work as shown in Figure 1 below. These articles had economic rent as their main focus on study and economic rent was identified as a major construct in the title.

Figure 1 illustrates the various publishing houses from which articles on the subject of economic rent have been sourced, together with the number of published articles on the subject. Elsevier Ltd. has 22 papers on economic rent available in print. SAGE publications also have about 10 papers within the same dimension. Routledge and Taylor and Francis have 5 papers each on economic rent more than Springer (3) and Emerald Group (1).
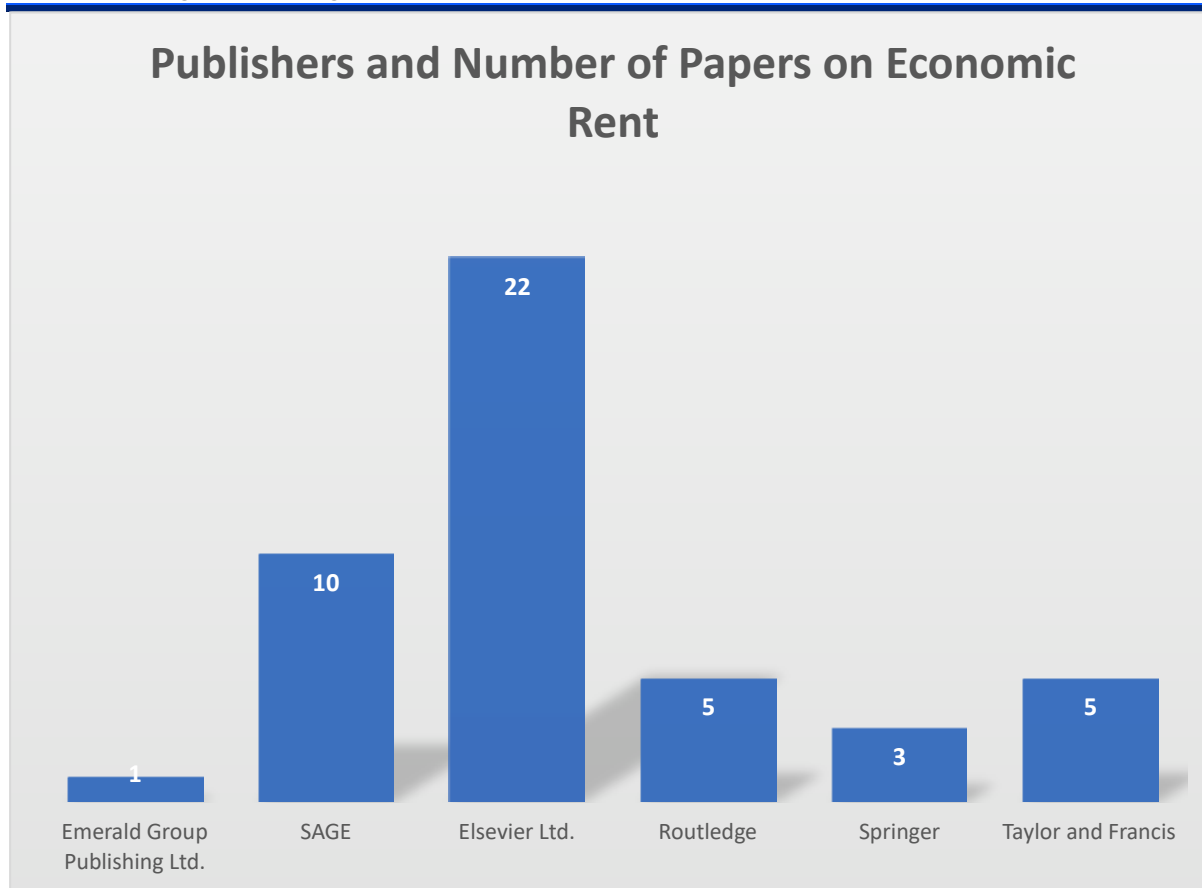
Figure 1: A chart showing publishers and the number of research papers on economic rent

Figure 2 displays the names of journals with publications on economic rent. It further shows the number of papers on economic rent documented in the respective journals. The graph shows an increasing number of papers from the International Journal of Economic Policy in Emerging

Economies which recorded the highest number of papers (10) on economic rent. The Journal of Economic Surveys also had 6 papers on economic rent. More than half of the journals reviewed more than 2 papers on economic rent. Const Polit Econ has only 1 paper on economic rent published.
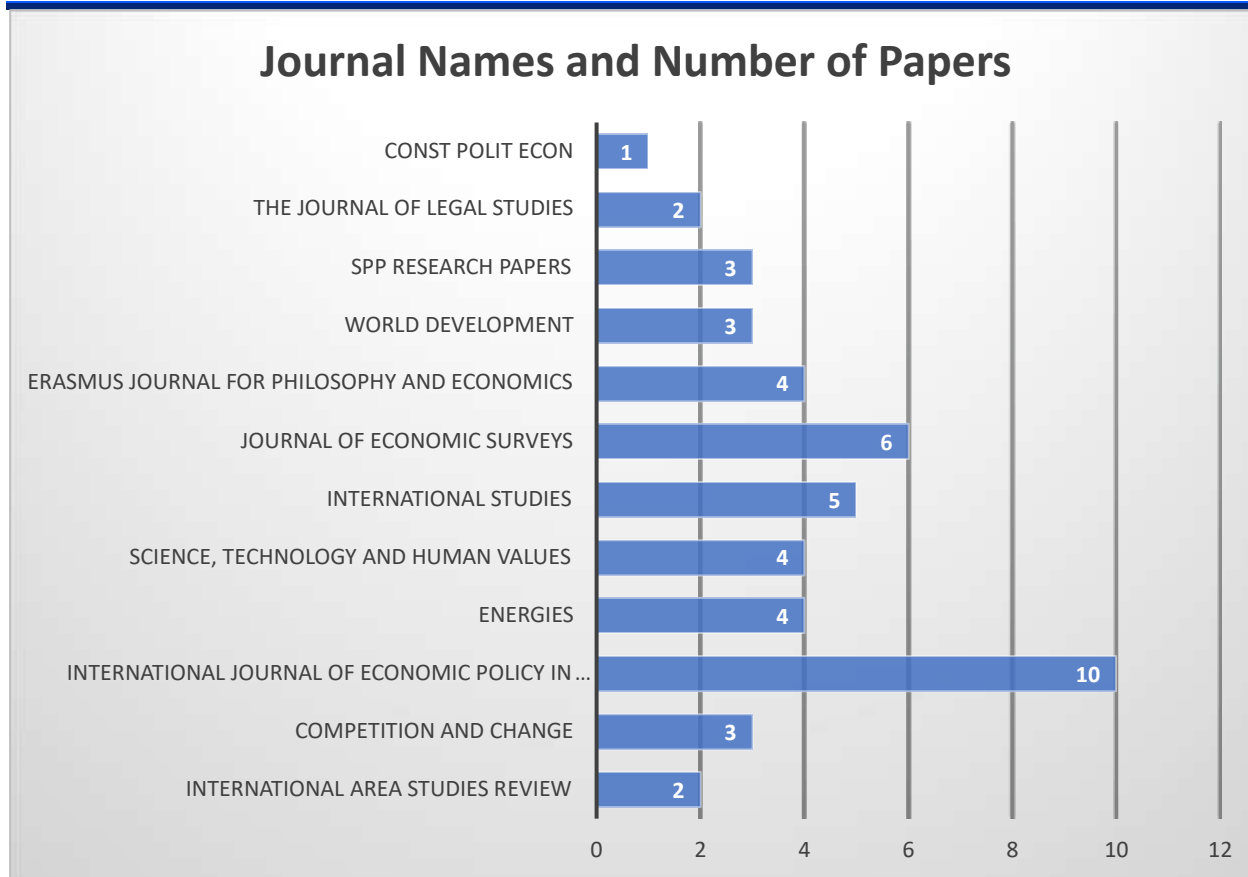
Journal Names and Number of Papers

Journal	Number of Papers
CONST POLIT ECON	1
THE JOURNAL OF LEGAL STUDIES	2
SPP RESEARCH PAPERS	3
WORLD DEVELOPMENT	3
ERASMUS JOURNAL FOR PHILOSOPHY AND ECONOMICS	4
JOURNAL OF ECONOMIC SURVEYS	6
INTERNATIONAL STUDIES	5
SCIENCE, TECHNOLOGY AND HUMAN VALUES	4
ENERGIES	4
INTERNATIONAL JOURNAL OF ECONOMIC POLICY IN …	10
COMPETITION AND CHANGE	3
INTERNATIONAL AREA STUDIES REVIEW	2

Figure 2: A chart showing journal names and the number of papers

Table 1: Methods Used in ER Research

Most of the papers reviewed followed the quantitative research format to get a better understanding of economic rents. Quantitative research, on the other hand, generalizes findings from a broader sample group by creating numerical data or data derived from views and other defined factors that may be turned into useful statistics. A few conceptual papers have built on the findings in economic rents over the years in the quest to bridge the knowledge gap in the subject.

A literature review can be defined as the foundation of research work because it gives a fair theoretical, together with the empirical idea of the research area. The fundamental purpose of a literature review is to show what information and concepts have been formed on a particular theme, as well as their strengths and limitations. In the area of economic rent research, very few literature reviews and viewpoint papers have been published according to the findings from Table 1. Thus, from the results in Table 1, quantitative research has largely been used to uncover trends economic rent research to delve deeper into the subject.

Method/Paper Type	No.
Quantitative	18

Qualitative	4
Systematic Review	5
Theory and Conceptual Paper	10
Narrative Literature Review	2
Unidentified	7
Total	**46**

4. Major Statistical Techniques Used in ER Research

4.1 Multiple Regression

Multiple regression is a widely used analytic method in the behavioural, educational, and social sciences because it allows you to model a quantitative outcome variable from regressor factors. It is critical to understand specific examples and extensions of multiple regression because they are among the most extensively used models in empirical research. As a result, in the analytic architecture of behavioural, educational, and social scientific research, multiple regression plays a critical role (Kelly and Bolin, 2013). Numerous regressions offer strong methods for examining the combined and independent contributions of multiple potential determinants, especially when experimental control is unavailable. It also aids readers in grasping the results of the most common and direct applications of these analyses (Licht, 1995). Interaction Effects in Multiple Regression is a clear and practical introduction to doing studies of interaction effects in the setting of multiple regression for researchers (Jaccard, 2003).

4.2 Structural Equation Modelling (SEM)

The statistical modeling method known as structural equation modeling (SEM) is widely used in the behavioral sciences. It may be thought of as a hybrid of factor analysis and path analysis or regression. SEM frequently focuses on theoretical concepts symbolized by latent components. The link between the theoretical constructs is indicated by path coefficients between the components. SEM, also known as covariance structure modelling, offers a structure for the covariances between the observable constructs. However, because the model is likely to be expanded to incorporate the means of observed components, covariance structure modelling is a less precise nomenclature. In SEM observed also known as measured variables are signified by a rectangular or square box, whereas latent otherwise known as unmeasured variables are represented by a circle (Wright, 1921). The model's causal links are defined by single-headed arrows or 'paths'. Without a causal meaning, double-headed arrows represent covariances or correlations. Variances and means have been represented using extensions of this notation. SEM encompasses various classic multivariate processes as special instances, such as factor analysis, discriminant analysis, correlation and regression analysis. Despite its drawbacks, this analytical approach has been employed by many economic rent researchers.

4.3 Thematic Analysis

A method for identifying and analyzing meaningful patterns in a dataset is thematic analysis (TA) (Braun & Clarke, 2006). It demonstrates which aspects of the topic under investigation are most relevant (Daly et al., 1997). The findings of a theme analysis must emphasize the dataset's most significant meaning. In such configurations, there are affective, cognitive, and symbolic components altogether. If one were interested in how people who do not use the services of mental health professionals view them, a theme analysis of interviews with a well-chosen sample of such folks could be able to show how they portray various mental health specialists. It was once widely used in psychology and other fields, often without distinction or acknowledgment (Braun & Clarke,

2006). A simple, adaptable, and widely used technique for analyzing qualitative data is thematic analysis. It provides a qualitative researcher with a solid foundation in the fundamental abilities necessary to participate in a variety of qualitative data analysis techniques.

4.4 Content Analysis

Content analysis is a study strategy for a methodical, objective, and qualitative description of a social phenomenon, according to Berelson (1952). According to Holsti, it is any method for drawing conclusions by repeatedly and objectively identifying specific characteristics of communications (1968). According to Krippendorff (1980), content analysis is a research methodology for creating reliable extrapolations from data within a certain context. Weber (1985) describes it as a research approach that employs a series of processes to get meaningful conclusions from text. The focus is on factors like system, independence, context, and validity. As a result, content analysis is all about validating content. Letters, diaries, newspaper articles, folk ballads, short tales, radio and television messages, documents, texts, or any symbols can be used for content analysis. One of its most significant uses has been to investigate social issues such as bias, discrimination, and the shifting cultural symbols in communication material.

Table 2: Statistical Techniques Used in ER Research

Statistics	No
Multiple Regression	9
SEM	6
Descriptive Statistics	4
Cluster Analysis	1
Pearson Correlation	1
Thematic Analysis	4
Content Analysis	5
ANOVA	1
Binary Logistics Regression	1
Computer-aided Analysis	1
Discourse Analysis	1
The generalized least square random-effects model	3
A longitudinal case study analysis	1
Mapping Process	1

Unidentified	7
Total	**46**

From Table 2, thematic analysis has been used more frequently by researchers to understand the aspects of economic rent in depth, and the relationships that may exist among those aspects. Similarly, content analysis, which may be used as a quantitative or qualitative method of data analysis was used by researchers in the field of economic rent to make valid inferences about data accumulated. On the flip side, Structural Equation Modelling (SEM) and Partial Least Squares Structural Equation Modelling (PLS-SEM), a statistical technique used to measure linear causal relationships among variables, were often used to analyze data gathered from quantitative research of the subject.

5. Conclusion

The purpose of the assignment was to review some statistical techniques that have been used in Economic Rent (ER) Research. Articles related to ER were gotten from the Scopus database using the Boolean search. Various inclusion and exclusion procedures were followed to select the right papers for the work. It was revealed that several Economic Rent researchers between 2018 – 2022 have relied mostly on the quantitative research strategy and also on quantitative data analysis techniques. The outstanding statistical techniques was thematic analysis and content analysis. The study recommends that more rigorous quantitative analysis techniques should be used in the conduct of quantitative studies to enhance the applicability and generalizability of the economic rent theory and practice.

References

Aidt, T.S. (2016). rent Seeking and the Economics of Corruption. *Const Polit Econ*, 27: 142 - 157

Antonelli, C. and Gehringer, A. (2017) Technological change, rent and income inequalities: a

Schumpeterian approach. *Technological Forecasting and Social Change* 115: 85–98.

Atkins, L., & Wallace, S. (2012). Qualitative education research. SAGE Publications Ltd.

Barnham, C. (2015). Quantitative and qualitative research: perceptual foundations. *International*

Journal of Market Research, 57(6), 837-854.

Berelson, B. (1952). Content analysis. *New York*.

Berg, B. L., & Lune, H. (2012). Qualitative research methods for the social sciences (8th ed.). Boston: Pearson.
Birch, K. (2020). Technoscience Rent: Toward a theory of rentiership for technoscientific capitalism. *Science, Technology & Human Values*, Vol. 45(1), 3-33
Birch, K., Ward, C., & Tretter, E. (2022). *Competition & Change*, 26(3-4), 407 – 414.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.
Burney, S., & Saleem, H. (2008). Inductive & Deductive Research Approach. Karachi, Pakistan.

Ciuriak, D. (2020). Economic rents and the contours of conflict in the data-driven economy.

Daly, J., Kellehear, A., & Gliksman, M. (1997). *The public health researcher: A methodological approach*. Melbourne, Australia: Oxford University Press.
De Loecker, J. and Eeckhout, J. (2018) Global market power. Working Paper 24768, National

Bureau of Economic Research.

De Vaus, D., & de Vaus, D. (2013). Surveys in social research. Routledge. SSRN Electronic

Journal.

Elkatawneh, H. (2016). Comparing Qualitative and Quantitative Approaches. SSRN Electronic

Journal.

Espinosa, V.I.; Peña-Ramos, J.A.; Recuero-López, F. The Political Economy of Rent-Seeking: Evidence from Spain's Support Policies for Renewable Energy. *Energies.* 14, 4197.

Green, H. (2014). Use of theoretical and conceptual frameworks in qualitative research. Nurse

Researcher, 21(6), 34 - 38.

Holloway, I., & Todres, L. (2003). The status of method: Flexibility, consistency and coherence.

Qualitative Research, *3*, 345-357.

Holsti, O. R. (1968). Content analysis. *The handbook of social psychology*, *2*, 596-692.

Jaccard, D. T. R. (2003). Interaction effects in multiple regression.

Johnson, B., & Christensen, L. (2012). Educational Research (4th ed.). Los Angeles, CA: SAGE.

Kelley, K., & Bolin, J. H. (2013). Multiple regression. In *Handbook of quantitative methods for educational research* (pp. 69-101). Brill Sense.

Kerlinger, F.N. (1986). Foundations of behavioural research (3rd ed), New York: Holt, Rinehart and Winston.

Krippendorff, K. (1980). Content Analysis: An introduction to its methodology, London: Sage.

Leedy, P. D., & Ormrod, J. E. (2014). Practical research: Planning and design (10th ed.). Harlow,

Essex: Pearson.

Leon, D.S. (2022). Do international rents bolster democratic backsliding under populist governments? Evidence from Latin America. *International Area Studies Review*. Vol. 25(4), 280 – 302

Licht, M. H. (1995). Multiple regression and correlation.

Mazzucato, M., Ryan-Collins, J & Gouzoulis, G. (2020). Theorising and mapping modern economic rents. UCL Institute for innovation and public purpose, Working paper 2020 – 13.

Mehrad, A., & Tahriri, M. H. (2019). Comparison between Qualitative and Quantitative Research

Approaches Social Sciences. *International Journal for Research in Educational Studies*, 5(7), 01–07.

Rodriguez, E.G. (2020). The cycle of Rents: A model of rational Bull-and-Bear cycles in an efficient market. UB Economics Working Papers 2020/400.

Schwab, D & Werker, E. (2018). Are economic rents good for development? Evidence from the manufacturing sector. *World Development*. 112, 33 – 45

Schwerhoff, G., Edenhofer, O & Fleurbaey, M. (2020). Taxation of Economic rents. *Journal of Economic Surveys*, Vol. 34, No. 2, pp. 398 – 423

Sutton, J. (2015). Qualitative research: Data collection, analysis and management. *Can J Hosp Pharm*. 68(3): 226–231

Tavakol, M., & Sandars, J. (2014). Quantitative and qualitative methods in medical education research: AMEE Guide No 90: Part I. *Medical Teacher*, 36(9), 746-756.

Warnecke-Berger, H. (2020). Capitalism, Rents and the transformation of violence. International

Studies, 57(2), 111 – 131

Weber. R.P. (1985). Basic content analysis, New Delhi: Sage

Wright, S. (1921). Correlation and Causation. Journal of. *Agricultural Research*.