

IMPLEMENTATION OF THE THEORY OF PLANNED BEHAVIOR IN THE PRIMARY AND BUSINESS ECONOMIC SECTORS: A SYSTEMATIC LITERATURE REVIEW

Ioanna Christodoulaki *, Alexandros G. Sahinidis **, Eleni Tourna **

* Corresponding author, Department of Business Administration, University of West Attica, Athens, Greece

Contact details: Department of Business Administration, University of West Attica, 250 Thivon & P. Ralli str., Egaleo 12241, Athens, Greece

** Department of Business Administration, University of West Attica, Athens, Greece



Abstract

How to cite this paper: Christodoulaki, I., Sahinidis, A. G., & Tourna, E. (2024). Implementation of the theory of planned behavior in the primary and business economic sectors: A systematic literature review. *Corporate Governance and Organizational Behavior Review*, 8(1), 155–168. <https://doi.org/10.22495/cgobrv8i1p13>

Copyright © 2024 The Authors

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). <https://creativecommons.org/licenses/by/4.0/>

ISSN Online: 2521-1889

ISSN Print: 2521-1870

Received: 19.06.2023

Accepted: 05.02.2024

JEL Classification: D91, L20, M10

DOI: 10.22495/cgobrv8i1p13

Marketing researchers and psychologists have widely used the theory of planned behavior (TPB) to predict intention and behavior (Ajzen, 1991), but less attention has been given to the implementation of TPB in the business economy and particularly in primary production and business sectors (P&BS). The scope of the study is to identify the articles published during the past decades concerning the use of TPB alone or in combination with other theories which investigate managers' or employees' behaviors and intentions in P&BS. This paper reviews 334 articles abstracts, and the analysis conducts a distribution of articles per publication year, per economy sector, per theme area, as well as a citation analysis, journal contribution to the TPB in P&BS, and detection of other theories used in combination with TPB in P&BS. The results of the analysis revealed that the TPB has been used successfully in a variety of disciplines and that the areas of interest are also broad (Krueger & Carsrud, 1993; Zapkau et al., 2015). Finally, the most important theories used in combination with TPB constructs, are presented (Saeedi et al., 2022; Wang et al., 2022), and some suggestions for potential future research on the subject and implications are provided.

Keywords: Theory of Planned Behavior, Business, Agriculture, Systematic Literature Review

Authors' individual contribution: Conceptualization — I.C.; Methodology — I.C. and E.T.; Investigation — I.C.; Writing — Original Draft — I.C.; Writing — Review & Editing — A.G.S. and E.T.; Supervision — E.T.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: The paper was funded by the Special Account for Research Grants by University of West Attica.

1. INTRODUCTION

The theory of reasoned action (TRA) and its later extension, the theory of planned behavior (TPB), are the theories that dominate the scientific discussions about persuasion and behavior change.

The central constructs of the TPB are the "Attitude" which is the belief, which is the probability that an action will lead to a certain outcome, the "Subjective norms" which are the perceptions about the opinion

of "Significant others" about a behavior, "Perceived behavioral control" (PBC) which is the extent to which the individual perceives itself of being able to perform the behavior in question and "Intention" which reflects the motivational factors that influence behavior and is also a successful forecaster of behavior (Ajzen, 1991). What distinguishes TRA from TPB is the inclusion of PBC in the model. Furthermore, the TPB has become one of the most widely used psychological theories to explain and

predict human behavior and specially to understand the connection between beliefs, attitudes, intentions, and behavior, and could ultimately be used to change people's behavior.

Social psychologists and marketing researchers have long used the TPB with remarkable success in practical applications as it has been widely considered to be effective in predicting intention and behavior (Cooke & French, 2008). The TPB has been used in several studies concerning social behavior and has been widely used in several areas, from health care, (i.e., weight loss, quitting smoking, using drugs) to safety, (i.e., using a seat belt), to social behavior (i.e., environmental habits, suicidal behaviors), consumer technology adoption, eating habits (i.e., consuming organic products), etc. The models of behavior are also consistently robust and replicable in predicting behavior and intentions, and career-related behaviors (Ajzen & Fishbein, 1980; Ajzen, 1987; Sheppard et al., 1988).

Even though the literature on the use of TPB to predict human behavior, in relation to health, eating or consuming habits, misuses, environmentalism, social behavior etc., is colossal, researchers have largely ignored these models for many years to explain or predict managers' business practices and intentions. Researchers in management studies usually used less robust and less predictive approaches such as personality traits, demographics, or even attitudinal approaches. Only during the past couple of decades has the TPB been applied successfully in several circumstances in the primary¹ production and business² sector (P&BS). Krueger and Carsrud (1993) argued that the TPB has enormous potential for entrepreneurship researchers and policymakers, entrepreneurs and consultants could benefit from understanding how intentions are formed and how their beliefs and perceptions motivate them in business. Policy makers also benefit from understanding that a policy initiative will affect business formations only if that policy is perceived in a way that influences attitudes.

The purpose of this article is to identify articles concerning the application of TPB, alone or in combination with other theories in P&BS of the economy, where the subjects of research are the enterprises, the managers, or the employees.

The first aspect of the study was searching the literature by reading the abstracts, which allowed to spot the economy sectors that are studied by researchers. The second stream of review focuses on classifying these articles by sector and by area of interest. Then we identify which other theories are used in combination with TPB to explain business intentions and behaviors.

The literature was mapped to investigate the usefulness of TPB, with basically psychological constructs, on economic decisions of entrepreneurs, managers and producers and finally provide the limitations of the study.

The structure of this paper is as follows. Section 2 analyses the methodology that has been used to conduct the research on the implementation

of the TRA and TPB alone or in combination with other theories. Section 3 presents the results of the analysis, i.e., the distribution of articles per year of publication, per economy sector, and theme area. Then the citation analysis is presented; the most influential publications and a year-wise analysis of citations and the journal contribution to the TPB in P&BS. Finally, the analysis presents the articles which combine other theories with TPB in P&BS research. Section 4 contains the conclusions, limitations of the study, future research, and implications.

2. RESEARCH METHODOLOGY

This section explains the research method used to perform the current systematic literature review. For this literature review, we adopted the rules of the systematic literature review by Xiao and Watson (2019) as it increases reliability, and potentially improves the findings. The methodology consists of three sections: the goal of the present research, the method used to identify the required articles, and the analysis adopted to extract the information needed.

2.1. Purpose of the study

To decide which articles to search for, and eventually include in the analysis, we developed a protocol in advance, to document the analysis method and inclusion criteria. We used four criteria:

a) *The central point of interest:* The focus of the analysis was to spot articles about the application of the TPB, alone or in combination with other theories, in the primary production (i.e., agriculture, forestry and fishing) and business sector.

b) *The time range:* This research examined articles published from 1993 up to 2022, which is an extensive period of 29 years to bring useful understanding to what Krueger and Carsrud (1993) saw as a great potential in using TPB to interpret behavior in business and entrepreneurship.

c) *The type of publications:* The study includes articles published in journals, having a business focus. Other publications, such as books and conference papers, were not included in the analysis.

d) *The language:* The analysis covered articles published in journals written in the English language. Articles in other languages were not examined.

2.2. The method used to discover relevant articles

The relevant articles in the literature were identified by using an electronic search. The electronic database Scopus was searched to this end, as it is one of the largest databases consisting of scientific peer-reviewed literature and especially journal articles. Keywords like "theory of planned behavior", "theory of reasoned action", "behavioral intention", "subjective norms", "perceived behavioral control", "attitude" AND "business" OR "services" OR "trad*" OR "tourism" OR "agriculture" OR "construction" OR "financ*" OR "entrepreneur*" OR "e-commerce" OR "communication" OR "manufact*" OR "transport*", OR "energy", were used to trace the relevant articles. The outcome of this literature search brought a vast number of articles that had to be examined based on their relevance to this study. The above keywords

¹ The European Classification of Economic Activities System (NACE) includes in the primary sector (agriculture, forestry, and fishing). <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

² Business economy refers to industry, construction, trade, and services (economic activities covered by Sections B to J, and L to N, and Division 95 of NACE Rev. 2). https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Business_economy_by_sector_-_NACE_Rev_2

were chosen to include all the relevant literature of the TPB in relation to the area of interest of this study. Thus, we used also keywords to make sure that the studies retrieved would include business sectors of the economy such as agriculture, construction, finance, trade, communication, transportation, any kind of manufacturing, tourism etc. This search delivered 5,857 articles.

2.3. Analysis adopted to extract the required information

We used criteria to include only those articles that were relevant to the scope of the study. Thus, the search was narrowed down by the following criteria: 1) years 1993-2022, 2) document type (articles), 3) publication stage (final), 4) source type (journal), 5) language (English), 6) subject areas (business, economics, econometrics, finance, energy, services, agriculture), and 7) key words (“theory of planned behavior”, “entrepreneurial intention”, “TPB”, “subjective norm”, “tourism”, “behavioral intention”, “tourist destination”, “waste management”, “business”, “construction industry”, “e-commerce”, “commerce”, “intentions”, “theory of reasoned action”, “planned behavior”, “tourism”, “behavioral intention”). The inclusion criteria were adopted as a means to provide articles on a focused aspect of a very broad literature on TPB. This search delivered 1,663 articles.

As an inclusion criterion, the time frame between 1993-2022, was chosen so as to cover almost three decades of literature on the subject, from the year that Krueger and Carsrud (1993) saw the great potential of the implementation of TPB in entrepreneurial research, up to, and including 2022.

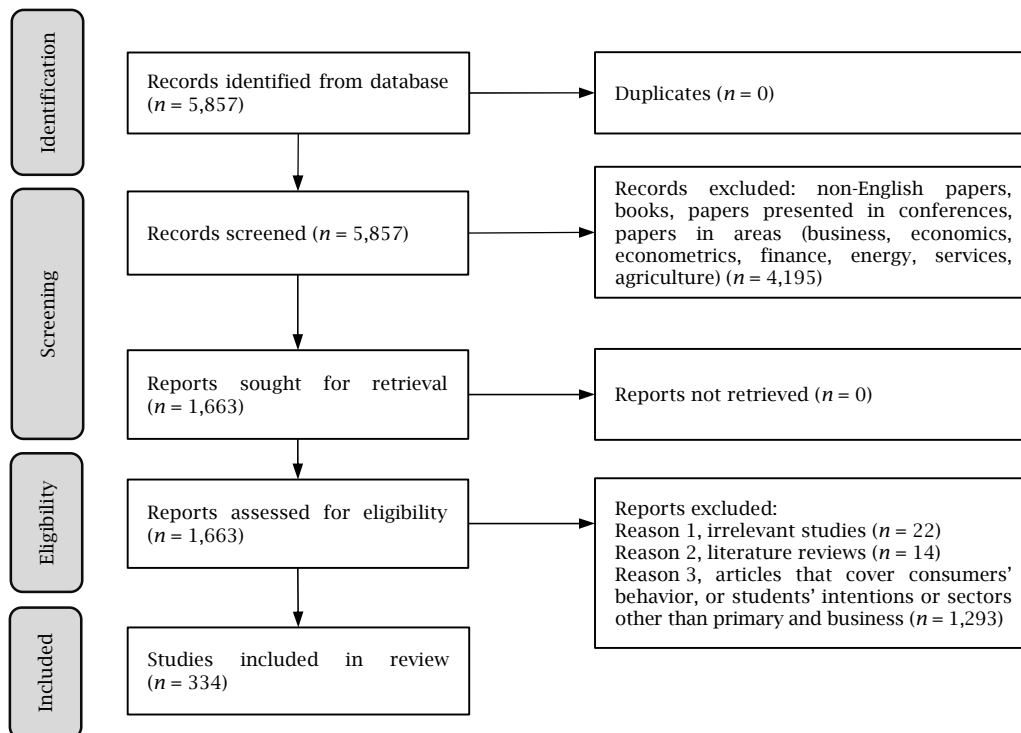
Then, the authors’ names, the title, the abstract, the keywords, the source title, and the year of publication, from the 1,663 identified articles, were exported to a Microsoft Excel spreadsheet.

The next exclusion criteria resulted in the deletion of 22 more papers that were irrelevant to the research scope and 14 articles that were literature reviews. These articles were excluded based on the title. This exclusion resulted in having 1,597 articles for the final review. The abstracts of the remaining articles were independently reviewed, and those referring to the use of TPB in P&BS were retained for further examination. In several cases where the abstract was not explanatory enough about the methods and the scope of the study, the full articles were reviewed to extract the information needed. Finally, another 1,293 articles were also excluded, as the samples studied were either consumers’ intentions or students’ intentions for choosing a profession or starting a business. This exclusion criterion was applied to end up only with those articles that were related to managerial decisions or decisions taken by the employees within a business entity.

These screening procedures resulted in 334 journal papers in English during 1993-2022, examining the implementation of TPB in several sectors of the real economy to predict or analyse decision-making, having as subjects of their research either managers or employees.

By considering the Preferred Reporting Items for Systematic Reviews and Meta-Analyses, also known as PRISMA (Page et al., 2021), we developed the PRISMA four-phase flow diagram presented below (Figure 1).

Figure 1. Identification of studies



Source: Authors’ elaboration.

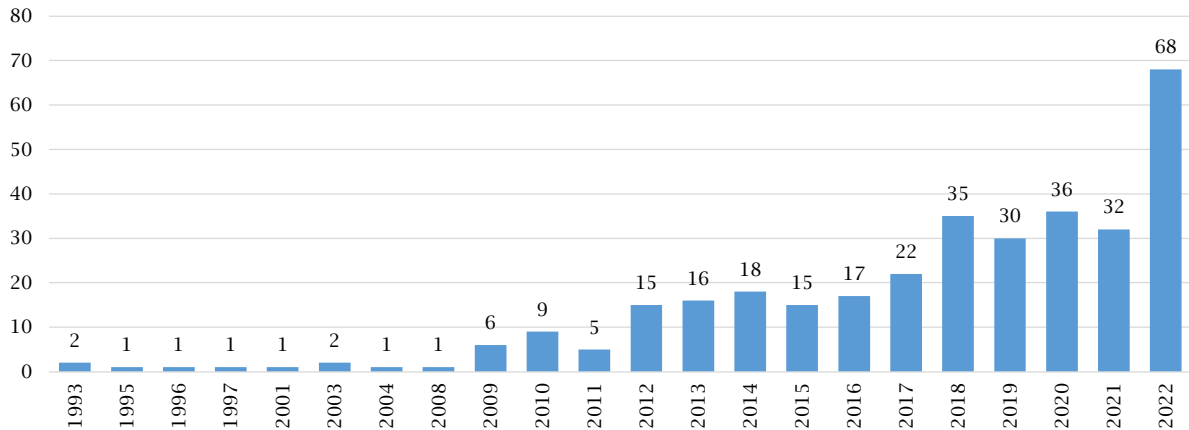
3. RESULTS: USE OF TPB IN THE P&BS

3.1. Distribution of articles per year of publication

Figure 2 shows the distribution of articles per year of publication. From 1993 to 2008, only one or two relevant articles were published, per annum, involving

the implementation of TPB in the P&BS. Between 2012 and 2016 the published articles did not exceed 20 articles per year. From 2017 to 2022 there was an increase in the number of papers published. This trend shows that there is an increasing interest among researchers working on TPB in areas other than psychology, consumer behavior, etc.

Figure 2. Distribution of articles by year of publication



Source: Authors' elaboration.

3.2. Distribution of articles per economic sector (primary and business)

In 1989 the United Nations Statistical Commission suggested an integrated system for classifying activities, goods, and services. Among those is the Broad Economic Categories (BECs) classification³, as defined in terms of Standard International Trade Classification (SITC), which is used for economic analysis. Based on this, the European Classification of Economic Activities (NACE) includes the primary sector economic activities which refers to agriculture, forestry, and fishing, hereafter "Agriculture" (Eurostat, 2008, Section A). Under this classification, the business economy includes industry, construction, and services. This refers to economic activities covered by Sections B to J, and L to N, and Division 95 of NACE Rev. 2, and the enterprises that carry out those activities. In detail, these sections are:

- B — Mining and quarrying;
- C — Manufacturing;
- D — Electricity, gas, steam, and air-conditioning supply;
- E — Water supply, sewerage, waste management and remediation activities;
- F — Construction;
- G — Wholesale and retail trade; repair of motor vehicles and motorcycles;
- H — Transportation and storage;
- I — Accommodation and food service activities;
- J — Information and communication;
- K — Financial and insurance activities;
- L — Real estate activities;
- M — Professional, scientific, and technical activities;

- N — Administrative and support service activities;

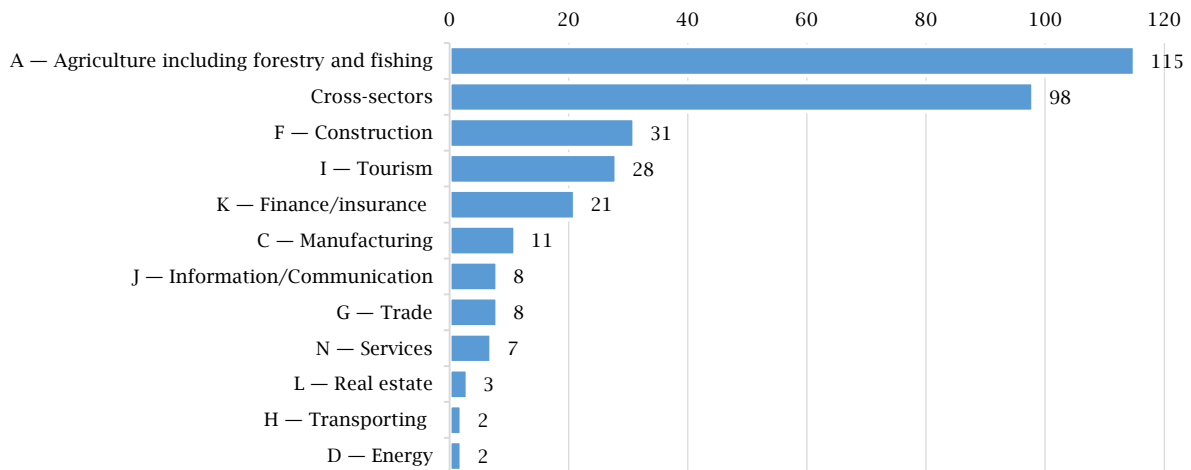
- 95 — Repair of computers and personal and household goods.

As a result, this review does not include articles concerning the public sector and non-market activities (i.e., education, public health, social work activities, activities of households as employers, entertainment etc.).

After further evaluation, the final set of articles extracted from the Scopus database was classified according to the NACE Rev. 2 definition. The majority of studies (35% of the total) were conducted in activities of NACE Section A, i.e., agriculture, forestry and fishing ($n = 115$). As depicted in Figure 3, between 1993 and 2022, there were several studies (98 publications or 29% of the total) that did not involve just one economy sector, but a cross-sector analysis was performed instead. The third most researched sector (by 9%) was construction ($n = 31$), followed by tourism ($n = 28$), finance/insurance ($n = 21$), manufacturing ($n = 11$), information/communication ($n = 8$), wholesale and retail trade ($n = 8$) and services ($n = 7$). Finally, there were fewer publications concerning real estate ($n = 3$), transporting ($n = 2$) and energy ($n = 2$). This distribution suggests that researchers found the TPB useful in their studies to explain or predict managers' or employees' intentions, in a wide variety of economy sectors.

In the review, no articles are found referring to NACE code activities such as B — Mining and quarrying, M — Professional, scientific, and technical activities, and 95 — Repair of computers and personal and household goods.

³ <https://unstats.un.org/unsd/trade/classifications/bec.asp>

Figure 3. Distribution of articles per economic sector (1993–2022)

Source: Authors' elaboration.

3.3. Distribution of articles by thematic areas

During the review of the articles, we observed that researchers were focusing on certain areas in their analysis.

Table 1. Research context of studies

| Thematic areas | No. of studies | % of total |
|------------------------------|----------------|-------------|
| Environmental issues | 108 | 32% |
| Business practices | 82 | 25% |
| Technology adoption | 28 | 8% |
| Entrepreneurship | 18 | 5% |
| Waste management | 13 | 4% |
| Innovation | 13 | 4% |
| E-business | 11 | 3% |
| Animal welfare and health | 10 | 3% |
| Financing/investments | 9 | 3% |
| Knowledge sharing | 9 | 3% |
| Food safety | 8 | 2% |
| Health safety | 6 | 2% |
| Internationalization | 7 | 2% |
| Social responsibility issues | 6 | 2% |
| Work safety | 6 | 2% |
| Total | 334 | 100% |

Source: Authors' elaboration.

As shown in Table 1, the context of 108 publications out of 334 concern “*Environmental issues*” (32% of the total), which is the most researched theme during the last 28 years. The “green” literature has explored the relationship between environmental issues and various behaviors and involves sustainability (Sarkar et al., 2022; Meng et al., 2022; Hsu et al., 2022; Cop et al., 2020), sustainable agricultural practices (Elahi et al., 2021; Sargani et al., 2020; Middermann et al., 2020), climate-resilient agriculture (Islam et al., 2022), cleaner technologies (Becker-Leifhold, 2018; Kokkonen & Ojanen, 2018; Arunrat et al., 2017), cleaner production (Yin et al., 2022; Brockhaus et al., 2016), circular economy (Muranko et al., 2018), adoption of green practices to reduce greenhouse emissions (Saleh, 2020; Bais-Moleman et al., 2018; Thompson & Hansen, 2013), energy saving (Sutherland & Holstead, 2014; Li et al., 2013; Uhlaner et al., 2012), renewable energy (Elahi et al., 2022; Gamel et al., 2022; Sarkar et al., 2022; Conradie et al., 2021) etc.

The second most researched area concerned “*Business practices*”. This category of publications is

25% of the total or 82 articles out of 334. Under “*Business practices*” were categorized into ethical sales (Oh et al., 2022; Tseng & Yu, 2019; Shahriar & Polonsky, 2013; Kurland, 1996), fraud (Cohen et al., 2010), business planning (Brinckmann et al., 2019), business performance (Kolvereid & Isaksen, 2017), raw material choice (Bysheim & Nyrud, 2009), management tools choice (Kurata et al., 2022; Hyland et al., 2018), training (Singh et al., 2022; Chereau & Meschi, 2022; Jaidev, 2018), project partnering (Zhang et al., 2018, Cheng, 2016), business succession (Contreras-Lozano et al., 2022; Zhou et al., 2016; Boyd et al., 2014; Mussolino & Calabrò, 2014), risk management (Taofeeq et al., 2022; Nielsen & Pontoppidan, 2020; Bryce et al., 2013) and data security (Bednar et al., 2019).

Technology adoption by companies ranks third with 28 publications or 8% of the total articles that used the TPB to examine the behaviors and intentions of managers, or employees. Nine of these articles concern agriculture (Warner et al., 2022; Jin et al., 2022; Yang et al., 2022; Ulhaq et al., 2022; Huo et al., 2022; Mohr & Kühl, 2021; Chen et al., 2021; Devkota et al., 2020; Lynne et al., 1995). Two out of 28 publications examined the construction sector (Wang et al., 2020; Adriaanse et al., 2010).

The next most researched theme was entrepreneurship (5% of the total), followed by waste management (4%), innovation (4%), e-business (3%), animal welfare and health (3%), financing/investments (3%), knowledge sharing (3%), food safety (2%), health and work safety (2%), internationalization (2%), and social responsibility issues (2%).

3.4. Citation analysis

The analysis includes a citation analysis (a) by publication and (b) by year of citation (based on the number of citations the articles received each year in the Scopus database).

3.4.1. Citation analysis by publication

The top 18 most influential publications which have more than 100 citations each, are responsible for 42% of the total citations in the field under analysis (see Table 2).

Table 2. Most influential publications (1993–2022)

| Authors | No. of citations | Sector | Context |
|--------------------------------|------------------|-----------------------|---------------------------|
| Krueger and Carsrud (1993) | 945 | Cross-sectors | Entrepreneurship |
| Harrison et al. (1997) | 382 | Cross-sectors | Technology adoption |
| Riemenschneider et al. (2003) | 346 | Cross-sectors | Technology adoption |
| Tohidinia and Mosakhani (2010) | 222 | C – Manufacturing | Knowledge sharing |
| Begum et al. (2009) | 206 | F – Construction | Waste management |
| Lynne et al. (1995) | 203 | A – Agriculture | Technology adoption |
| Teo and Loosemore (2001) | 196 | F – Construction | Waste management |
| East (1993) | 148 | K – Finance/insurance | Investments |
| Marchini and Macdonald (2012) | 144 | A – Agriculture | Environment |
| Bergevoet et al. (2004) | 143 | A – Agriculture | Entrepreneurship |
| Awa et al. (2015) | 140 | Cross-sectors | E-commerce |
| Cohen et al. (2010) | 128 | Cross-sectors | Business practices |
| Alarcon et al. (2014) | 112 | A – Agriculture | Animal welfare and health |
| Uhlaner et al. (2012) | 112 | Cross-sectors | Environment |
| Zapkau et al. (2015) | 111 | Cross-sectors | Entrepreneurship |
| Grandón et al. (2011) | 107 | Cross-sectors | E-commerce |
| Sommer and Haug (2011) | 101 | Cross-sectors | Internationalization |
| Wang and Ritchie (2012) | 100 | I – Tourism | Business practices |

Source: Authors' elaboration.

Among these, the most cited article, with 945 citations (10% of the total), is Krueger and Carsrud (1993). The authors conducted a cross-sector analysis concerning entrepreneurs' intention to start a business and were among the first who realized the potential of the application of TPB in managerial decision-making. Around 300 citations in other publications were reported for Harrison et al. (1997) and Riemenschneider et al. (2003). Both studies performed cross-sector research under the context of technology adoption by companies. This is expected, since the more sectors a publication involves, the less specified it is and the more citations it gets.

Fourth in the ranking with 222 citations is Tohidinia and Mosakhani (2010), followed by Begum et al. (2009) with 206 citations, Lynne et al. (1995) with 203 citations, Teo and Loosemore (2001) with 196 citations, East (1993) with 148 citations, Marchini and Macdonald (2012) with 144 citations, Bergevoet et al. (2004) with 143 citations, Awa et al. (2015) with 140 citations, Cohen et al. (2010) with 128 citations, Alarcon et al. (2014) with 112 citations, Uhlaner et al. (2012) with 112 citations, Zapkau et al. (2015) with 111 citations, Grandón et al. (2011) with 107 citations, Sommer and Haug (2011) with 101 citations and Wang and Ritchie (2012) with 100 citations.

Out of the 334 articles, the analysis for "cross-sector" related publications accounts for 40% of total citations ($n = 2,537$) and the agricultural sector (including forestry and fishing)-related publications account for 28% of the total ($n = 3,657$). The third

most cited sector is the construction sector accounting for 12% of total citations ($n = 1,071$).

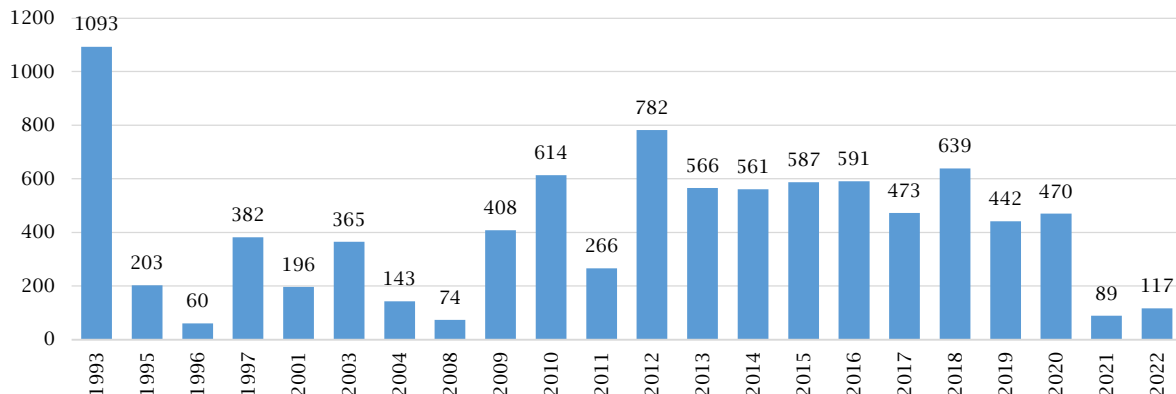
3.4.2. Year-wise analysis of citations

As we see in Figure 4, the largest number of citations seen in 1993 is affected by the most influential article found in the review which is Krueger and Carsrud (1993). This is somewhat expected, as the authors were among the first to see the great potential in the use of TPB in entrepreneurship, leading the way for future scholars. It is also the oldest article doing a cross-sector analysis of entrepreneurial intention.

Although citation count represents the best way to spot the most influential articles, it has attracted some criticism as it favors older publications over recent ones, it does not distinguish between negative or positive citations and the number of citations could be inflated by authors' self-citations (Inkpen & Beamish, 1994).

A higher number of citations, per annum, were found from 2010 up to 2020, where there is an increasing interest in the TPB by more disciplines when adding more variables in the constructs or by combining them with the variables of other theories.

The oldest articles are expected to be more cited than recent publications and this is obvious in the year-wise analysis of citations: 2021 ($n = 89$), and 2022 ($n = 117$) have less citations compared to previous years.

Figure 4. Number of citations per year of publication

Source: Authors' elaboration.

3.4.3. Journal contribution to the TPB in primary and business sectors

The 334 articles examined in the review were published in a wide variety of academic journals. This can be seen in Table 3, where we show that 140 articles (42%) were published in different journals. This indicates that the TPB is used by a large variety of disciplines and generally has

an important impact across many scientific areas. This is expected, as the TPB is a well-established theory, that helps researchers explain managerial behavior and intentions in a business context. The journal with the highest number of publications is the *Journal of Cleaner Production* having published 22 TPB-related articles (6.6%), followed by the *Sustainability* journal having published 18 TPB-related articles (5.4% of the total).

Table 3. Journal count

| Journal | No. of studies | % of Total | Journal | No. of studies | % of Total |
|--------------------------------------------------------------|----------------|------------|--------------------------------------------------------------|----------------|---------------|
| <i>Journal of Cleaner Production</i> | 22 | 6.6% | <i>Agricultural Systems</i> | 3 | 0.9% |
| <i>Sustainability (Switzerland)</i> | 18 | 5.4% | <i>Animals</i> | 3 | 0.9% |
| <i>Land Use Policy</i> | 12 | 3.6% | <i>Business Strategy and the Environment</i> | 3 | 0.9% |
| <i>Journal of Construction Engineering and Management</i> | 6 | 1.8% | <i>Construction Management and Economics</i> | 3 | 0.9% |
| <i>Ecological Economics</i> | 5 | 1.5% | <i>Engineering Construction and Architectural Management</i> | 3 | 0.9% |
| <i>Food Control</i> | 5 | 1.5% | <i>Journal of Dairy Science</i> | 3 | 0.9% |
| <i>Journal of Business Research</i> | 5 | 1.5% | <i>Journal of Entrepreneurship in Emerging Economies</i> | 3 | 0.9% |
| <i>Preventive Veterinary Medicine</i> | 5 | 1.5% | <i>Journal of Management in Engineering</i> | 3 | 0.9% |
| <i>Agriculture (Switzerland)</i> | 4 | 1.2% | <i>Journal of Small Business and Enterprise Development</i> | 3 | 0.9% |
| <i>International Entrepreneurship and Management Journal</i> | 4 | 1.2% | <i>Journal of Small Business Strategy</i> | 3 | 0.9% |
| <i>Journal of Business Ethics</i> | 4 | 1.2% | Various Journals with 2 Articles | 66 | 19.8% |
| <i>Resources Conservation and Recycling</i> | 4 | 1.2% | Various Journals with 1 Article | 140 | 41.9% |
| <i>Technological Forecasting and Social Change</i> | 4 | 1.2% | Total | 334 | 100.0% |

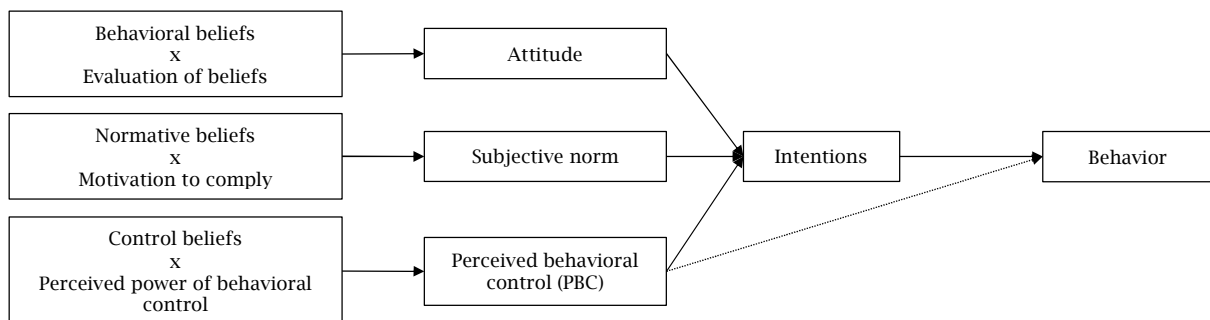
3.4.4. Use of TPB alone or in combination with other theories in primary production and business

The TPB has been used to explain a large number of managerial behaviors and intentions alone or in combination with other theories. Ajzen (1991) stated that the TPB is flexible because it allows for the inclusion of additional variables if they improve the model's predictive power and can be shown to be conceptually independent of the model's

constructs. More recent studies have attempted to improve the predictive power of the TPB by adding extra variables.

Figure 5 is a visual presentation of the TPB and the relationships of its main constructs. It describes the relationships between beliefs-attitude-intentions and behavior or beliefs, subjective norms, intentions and behavior, or control beliefs-PBC-intentions and behavior.

Figure 5. TPB and connections between its main constructs



Source: Ajzen (1991).

Table 4. Standalone use of TPB or in combination with other theories (Part 1)

| Theories | No. of studies | % of total |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------|
| TPB and TRA | 233 | 69.8% |
| Extended or decomposed TPB | 35 | 10.5% |
| TPB and technology acceptance model (TAM)/Technology-organization-environment (TOE)/Technology regime/Unified theory of acceptance and use of technology (UTAUT) | 15 | 4.5% |
| TPB and environmental concern (EC) or environmental sensitivity/Perceived environmental benefit and perceived ecological impact variables/New ecological paradigm/Person-environment fit theory/Institutional pressures and environmental consciousness/Social-ecological systems framework/Corporate environmental market responsiveness (CEMR) | 8 | 2.4% |
| TPB and norm-activation model (NAM) | 5 | 1.5% |
| TPB and diffusion of innovation (DOI)/Innovation theory | 4 | 1.2% |
| TPB and value-belief-norm (VBN) and health belief model (HBM) | 2 | 0.6% |

Table 4. Standalone use of TPB or in combination with other theories (Part 2)

| Theories | No. of studies | % of total |
|-------------------------------------------------------------------------------------------------------------------------|----------------|-------------|
| TPB and Schwartz's (2004) work values | 1 | 0.3% |
| TPB and prospect theory | 1 | 0.3% |
| TPB and social identity theory | 1 | 0.3% |
| TPB and achievement motivation theory (AMT) | 1 | 0.3% |
| TPB and behavioral reasoning theory, goal-directed behavior theory, norm activation theory and belief-value-norm theory | 1 | 0.3% |
| TPB and deterrence theory (DT) | 1 | 0.3% |
| TPB and enlightened self-interest | 1 | 0.3% |
| TPB and entrepreneurial event theory | 1 | 0.3% |
| TPB and ettlie's adoption stages | 1 | 0.3% |
| TPB and for trust management (FTM) | 1 | 0.3% |
| TPB and generational cohort theory (GCT) | 1 | 0.3% |
| TPB and information-perception-behavior link | 1 | 0.3% |
| TPB and instrumental and personal values | 1 | 0.3% |
| TPB and literature on organizational adoption of innovation | 1 | 0.3% |
| TPB and McClelland's three psychological needs approach | 1 | 0.3% |
| TPB and neo-institutional theory | 1 | 0.3% |
| TPB and organizational learning culture (OLC) | 1 | 0.3% |
| TPB and organizational legitimacy theory | 1 | 0.3% |
| TPB and Paternalism | 1 | 0.3% |
| TPB and perceived corporate social responsibility | 1 | 0.3% |
| TPB and protection motivation theory | 1 | 0.3% |
| TPB and satisfaction theories | 1 | 0.3% |
| TPB and self-determination theory (SDT) | 1 | 0.3% |
| TPB and Shapiro's model of the entrepreneurial event | 1 | 0.3% |
| TPB and social capital variables | 1 | 0.3% |
| TPB and social contagion theory | 1 | 0.3% |
| TPB and stakeholder and resource dependence theories | 1 | 0.3% |
| TPB and social exchange theory (SET) | 1 | 0.3% |
| TPB and the fraud triangle (FT) | 1 | 0.3% |
| TPB and the protection motivation theory | 1 | 0.3% |
| TPB and the socioemotional wealth framework (SEW) | 1 | 0.3% |
| TPB and utility maximisation (UM) | 1 | 0.3% |
| TPB pro-circular values (P-CVs) and persuasive communication (PC) | 1 | 0.3% |
| Total | 334 | 100% |

Source: Authors' elaboration.

Based on the literature review from 1993 to 2022, we found that the way the TPB is used is also broad. Table 4 presents all the theories that were used in combination with TPB, in P&BS, to explain the engagement of managers and employees in certain behaviors and the drives behind them. The results show that 233 studies out of the 334, or 69.8% of the total, used the TPB or the TRA. Out of those, 3 articles used a combination of TRA and the TPB (Umar et al., 2022; Adnan et al., 2017; Martínez-García et al., 2013). Another 35 articles (10.5%) used the decomposed or extended TPB version of the theory by adding extra variables.

In 19 articles focusing on technology use, innovation, or e-business, TPB was used with technology-related theories such as:

- 1) technology acceptance model (TAM) (Saeedi et al., 2022; Wang et al., 2022; Lamb et al., 2022; Ulhaq et al., 2022; Mohr & Kühl, 2021; Chong et al., 2021; Pattansheti et al., 2016);
- 2) technology organization environment (TOE) (Awa et al., 2015);
- 3) innovation diffusion theory (IDT) (Cheng & Cho, 2011);
- 4) technology regime or the unified theory of acceptance and use of technology (UTAUT) (Kamproem et al., 2017).

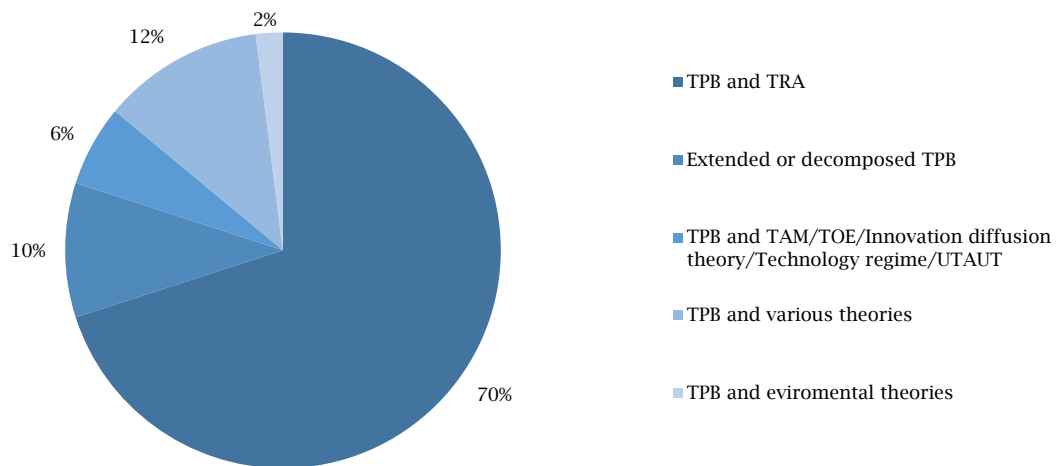
Eight articles (2.4% of the total) combine TPB with environment-related theories and constructs such as environmental concern (EC) (Leby & Hashim, 2019) or environmental sensitivity (Ouvrard et al., 2019); perceived environmental benefit and perceived ecological impact variables (Chin et al., 2016), and new ecological paradigm (Giacomarra et al., 2019);

Person-environment fit theory (Reinke & Gerlach, 2021); institutional pressures and environmental consciousness (Jain et al., 2020); social-ecological systems framework (Bourceret et al., 2022); corporate environmental market responsiveness (CEMR) (Rivera-Camino, 2012).

Five articles used TPB and norm activation model (NAM) to explain mostly environment-related behaviors and intentions in various sectors of the economy, such as trade, agriculture, food manufacture, restaurants, and information technology (Kastner et al., 2021; Nguyen & Drakou, 2021; Bell & Ulhas, 2020; Kim & Hwang, 2020; Asadi et al., 2018). The norm activation model (NAM) by Schwartz (1977) advocates that moral norms dictate what people believe and how they behave. The NAM includes three variables: awareness of consequences, ascription of responsibility, and personal norms that explain behavior.

Besides the above-mentioned theories or constructs, Table 4 presents several others, each accounting for 0.3% of the total, each with only one publication. All these theories in total account for 12% of the total studies (Figure 6).

The large variety of theories and variables (almost 65 other theories, see Table 4) used in the literature in combination with the TPB, underlines the fact that TPB is used in a wide range of disciplines and covers many themes in the business economy such as business practices, innovation, technology adoption, investments, entrepreneurship, waste management, e-commerce, knowledge sharing, environment, etc.

Figure 6. Percentage distribution of articles using TPB standalone or in combination with other theories

Source: Authors' elaboration.

4. CONCLUSION

This study conducted a literature review of articles published between 1993 and 2022 concerning the use of TPB to investigate managers' or employees' behaviors and intentions. The central point of interest is to spot articles concerning the implementation of the TPB, alone or in combination with other theories, in primary production (i.e., agriculture, forestry and fishing) and business sectors, beyond its mostly known use in research related to psychology, social behavior, consumer behavior, etc. The purpose of the study is to investigate the ongoing interest of researchers to the TPB in business research, identify the subsectors of the business economy that used the TPB, to map the main themes that their analysis involved. Another goal was to show the flexibility of the TPB and TRA, as they have been used in combination with other theories or have been enhanced using other variables as well.

To this end, the Scopus electronic database was searched with specific, relevant to the study, keywords. The search rendered 5,857 records. The sample was further downsized to 1,663 records by extracting only journal articles in English and in certain disciplines related to the study. Then the abstracts of these articles were reviewed independently with the aim of keeping only those articles that meet the scope of the analysis. Thus, all studies having as subjects of research consumers or students were excluded as irrelevant. This process ended up with 334 articles reviewing their abstracts and gathering all the useful information, such as the subject, the sector, the theme, and the theories used in the studies. The analysis proceeded with a distribution of articles per publication year, per economy sector under NACE codes, per theme area, the most influential publications and a year-wise distribution of citations and journals' contribution to the TPB in P&BS and detects other theories used in combination with TPB in P&BS.

This literature review provides evidence that, even though the TRA and its later extension TPB were initially introduced more than three decades ago, ongoing attention is still being paid to it by researchers, due to its predictive power and its flexibility to be used in combination with other theories and/or constructs. In agriculture and

business sectors, the use of TRA and TPB, extended or decomposed, account for 80.3% of the articles extracted (334) from the database and year-wise analysis showed that the most fruitful period was between 2010 and 2022. The rest 19.7% of the articles involve the use of TPB in combination with other theories. There is a large variety of theories and constructs that are used in combination with the TPB, in particular more than 65, and the most common ones are related to technology, innovation and environment such as the technology acceptance model (TAM), technology-organization-environment (TOE), technology regime, unified theory of acceptance and use of technology (UTAUT), innovation diffusion theory (IDT), environmental concern (EC) or environmental sensitivity, perceived environmental benefit and perceived ecological impact variables, new ecological paradigm, Person-environment fit theory, institutional pressures and environmental consciousness, social-ecological systems framework, and corporate environmental market responsiveness (CEMR).

The interest in the TPB is not only vivid, through the years, but it is also broad. Even though the TPA and its extension the TPB were initially used by social psychologists and marketing researchers to investigate peoples' habits, consumers' behavior, etc., the results of the analysis reveal that the TPB has been used successfully in a variety of disciplines among P&BS to investigate managers' and employees' intentions. Even though almost one-third of the articles involve studies conducted in the primary sector (i.e., agriculture, forestry, and fishing), many researchers did a cross-sector analysis indicating that the area of interest is broad. These studies cover almost all sectors leaving out a few sectors of the business economy. The majority of the themes covered by these studies concern environmental issues, new business practices, technology adoption and innovation. Even though the above themes are the most researched in literature, there are plenty of other areas of interest such as entrepreneurship, waste management, e-business, animal welfare and health, knowledge sharing, food safety, internationalization, social responsibility issues etc. These studies are published in various journals like the *Journal of Cleaner Production*, *Sustainability* journal, and *Land Use Policy* journal. Several studies

(62% of the articles) with only one or two publications per journal, cover a wide variety of other issues supporting the argument for the broad use of the TPB.

All in all, the findings show that the TPB still has the attention of the researchers and is even being used to explain/predict/influence even the most recent environmental concerns in primary production that have been gaining growing importance from 2012 onwards. The diverse publishing outlets show that the application of the TPB is attracting the interest of scholars from different fields.

The current study may serve as a useful tool for understanding to which extent the TPB has been employed in the domains of P&BS. However, there are still some gaps to be addressed. The main limitations of the study are:

1) the study was based on articles that were published in peer-reviewed academic journals in English only; that is, non-English books, industry reports, and conference presentations were not the focus of the study, which could be explored in future studies;

2) this study is limited to the Scopus database as a source; future studies may use other sources

with different scopes to make a solid contribution to the current body of knowledge;

3) the literature research ends in 2022, future studies may extend their search to include the year 2023 and after.

This study has implications for researchers, since the results of the analysis, showed that some sectors in business economics have not attracted the attention of researchers for many years. Research related to the implementation of TPB in business sectors such as mining and quarrying, professional, scientific, and technical activities, and repair of computers and personal household goods, will strengthen the literature on this issue. In addition, we found that the literature on sectors such as real estate, energy and transportation is quite scarce, which may also attract future research interest and contribute to the general literature related to the implementation of TPB in business economics.

Finally, another implication for researchers is that they can draw inspiration from a wide variety of other theories when combined with TPB to strengthen their models for analysing predicted behavior and intentions in management research.

REFERENCES

- Adnan, N., Nordin, S. M., & Ali, M. (2018). A solution for the sunset industry: Adoption of Green Fertilizer Technology amongst Malaysian paddy farmers. *Land Use Policy*, 79, 575-584. <https://doi.org/10.1016/j.landusepol.2018.08.033>
- Adriaanse, A., Voordijk, H., & Dewulf, G. (2010). Adoption and use of interorganizational ICT in a construction project. *Journal of Construction Engineering and Management*, 136(9), 1003-1014. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000201](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000201)
- Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. *Advances in Experimental Social Psychology*, 20, 1-63. [https://doi.org/10.1016/s0065-2601\(08\)60411-6](https://doi.org/10.1016/s0065-2601(08)60411-6)
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t)
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior* (1st ed.). Prentice-Hall.
- Alarcon, P., Wieland, B., Mateus, A. L. P., & Dewberry, C. (2014). Pig farmers' perceptions, attitudes, influences and management of information in the decision-making process for disease control. *Preventive Veterinary Medicine*, 116(3), 223-242. <https://doi.org/10.1016/j.prevetmed.2013.08.004>
- Arunrat, N., Wang, C., Pumijumnong, N., Sereenonchai, S., & Cai, W. (2017). Farmers' intention and decision to adapt to climate change: A case study in the Yom and Nan basins, Phichit province of Thailand. *Journal of Cleaner Production*, 143, 672-685. <https://doi.org/10.1016/j.jclepro.2016.12.058>
- Asadi, S., Hussin, A. R. C., & Dahlan, H. M. (2018). Toward green IT adoption: From managerial perspective. *International Journal of Business Information Systems*, 29(1), 106-125. <https://doi.org/10.1504/ijbis.2018.094002>
- Awa, H. O., Ojiabo, O. U., & Emecheta, B. C. (2015). Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science and Technology Policy Management*, 6(1), 76-94. <https://doi.org/10.1108/jstpm-04-2014-0012>
- Bais-Moleman, A. L., Sikkema, R., Vis, M., Reumerman, P., Theurl, M. C., & Erb, K.-H. (2018). Assessing wood use efficiency and greenhouse gas emissions of wood product cascading in the European Union. *Journal of Cleaner Production*, 172, 3942-3954. <https://doi.org/10.1016/j.jclepro.2017.04.153>
- Becker-Leifhold, C. V. (2018). The role of values in collaborative fashion consumption — A critical investigation through the lenses of the theory of planned behavior. *Journal of Cleaner Production*, 199, 781-791. <https://doi.org/10.1016/j.jclepro.2018.06.296>
- Bednar, K., Spiekermann, S., & Langheinrich, M. (2019). Engineering privacy by design: Are engineers ready to live up to the challenge? *Information Society*, 35(3) 122-142. <https://doi.org/10.1080/01972243.2019.1583296>
- Begum, R. A., Siwar, C., Pereira, J. J., & Jaafar, A. H. (2009). Attitude and behavioral factors in waste management in the construction industry of Malaysia. *Resources, Conservation and Recycling*, 53(6) 321-328. <https://doi.org/10.1016/j.resconrec.2009.01.005>
- Bell, A. E., & Ulhas, K. R. (2020). Working to reduce food waste: Investigating determinants of food waste amongst taiwanese workers in factory cafeteria settings. *Sustainability*, 12(22), Article 9669. <https://doi.org/10.3390/su12229669>
- Bergevoet, R. H. M., Ondersteijn, C. J. M., Saatkamp, H. W., van Woerkum, C. M. J., & Huirne, R. B. M. (2004). Entrepreneurial behaviour of Dutch dairy farmers under a milk quota system: Goals, objectives and attitudes. *Agricultural Systems*, 80(1), 1-21. <https://doi.org/10.1016/j.agsy.2003.05.001>
- Bourceret, A., Amblard, L., & Mathias, J. D. (2022). Adapting the governance of social-ecological systems to behavioural dynamics: An agent-based model for water quality management using the theory of planned behaviour. *Ecological Economics*, 194(C), Article 107338. <https://doi.org/10.1016/j.ecolecon.2021.107338>
- Boyd, B., Botero, I. C., & Fediuk, T. A. (2014). Incumbent decisions about succession transitions in family firms: A conceptual model. *International Journal of Financial Studies*, 2(4), 335-358. <https://doi.org/10.3390/ijfs2040335>

18. Brinckmann, J., Dew, N., Read, S., Mayer-Haug, K., & Grichnik, D. (2019). Of those who plan: A meta-analysis of the relationship between human capital and business planning. *Long Range Planning*, 52(2), 173-188. <https://doi.org/10.1016/j.lrp.2018.01.003>
19. Brockhaus, S., Petersen, M., & Kersten, W. (2016). A crossroads for bioplastics: Exploring product developers' challenges to move beyond petroleum-based plastics. *Journal of Cleaner Production*, 127, 84-95. <https://doi.org/10.1016/j.jclepro.2016.04.003>
20. Bryce, C., Cheevers, C., & Webb, R. (2013). Operational risk escalation: An empirical analysis of UK call centres. *International Review of Financial Analysis*, 30, 298-307. <https://doi.org/10.1016/j.irfa.2013.05.002>
21. Bysheim, K., & Nyrud, A. Q. (2009). Using a predictive model to analyze architects' intentions of using wood in urban construction. *Forest Products Journal*, 59(7-8), 65-74. <https://go.gale.com/ps/i.do?id=GALE%7CA209801579&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=00157473&p=AONE&sw=w&userGroupName=anon%7Eb0a23aa2&aty=open-web-entry>
22. Chen, X., Jin, Y., & Mao, S. (2021). How can apple farmers be encouraged to apply information technology? The moderating effect of knowledge sharing. *Sustainability*, 13(18), Article 10228. <https://doi.org/10.3390/su131810228>
23. Cheng, E. W. L. (2016). Intentions to form project partnering in Hong Kong: Application of the theory of planned behavior. *Journal of Construction Engineering and Management*, 142(12). [https://doi.org/10.1061/\(asce\)co.1943-7862.0001200](https://doi.org/10.1061/(asce)co.1943-7862.0001200)
24. Cheng, S., & Cho, V. (2011). An integrated model of employees' behavioral intention toward innovative information and communication technologies in travel agencies. *Journal of Hospitality and Tourism Research*, 35(4), 488-510. <https://doi.org/10.1177/1096348010384598>
25. Chereau, P., & Meschi, P. X. (2022). Deliberate practice of entrepreneurial learning and self-efficacy: The moderating effect of entrepreneurial parental environment as role modeling. *Journal of Small Business and Enterprise Development*, 29(3). <https://doi.org/10.1108/jsbed-07-2021-0277>
26. Chin, H. C., Choong, W. W., Alwi, S. R. W., & Mohammed, A. H. (2016). Using theory of planned behaviour to explore oil palm smallholder planters' intention to supply oil palm residues. *Journal of Cleaner Production*, 126, 428-439. <https://doi.org/10.1016/j.jclepro.2016.03.042>
27. Chong, L. L., Ong, H. B., & Tan, S. H. (2021). Acceptability of mobile stock trading application: A study of young investors in Malaysia. *Technology in Society*, 64, Article 101497. <https://doi.org/10.1016/j.techsoc.2020.101497>
28. Cohen, J., Ding, Y., Lesage, C., & Stolowy, H. (2010). Corporate fraud and managers' behavior: Evidence from the press. *Journal of Business Ethics*, 95(2), 271-315. <https://doi.org/10.1007/s10551-011-0857-2>
29. Conradie, P. D., De Ruyck, O., Saldien, J., & Ponnet, K. (2021). Who wants to join a renewable energy community in Flanders? Applying an extended model of theory of planned behaviour to understand intent to participate. *Energy Policy*, 151, 112-121. <https://doi.org/10.1016/j.enpol.2020.112121>
30. Contreras-Lozano, C. R., Flores-Ortiz, M. V., & Alcalá-Álvarez, M. D. C. (2022). Is socioemotional wealth being influenced by the intentions to pursue succession on incumbent owners? Empirical research on Mexican family business. *Journal of Family Business Management*, 12(4), 833-852. <https://doi.org/10.1108/jfbm-11-2020-0105>
31. Cooke, R., & French, D. P. (2008). How well do the theory of reasoned action and theory of planned behavior predict intentions and attendance at screening programs? A meta-analysis. *Psychology and Health*, 23(7), 745-765. <https://doi.org/10.1080/08870440701544437>
32. Cop, S., Alola, U. V., & Alola, A. A. (2020). Perceived behavioral control as a mediator of hotels' green training, environmental commitment, and organizational citizenship behavior: A sustainable environmental practice. *Business Strategy and the Environment*, 29(8), 3495-3508. <https://doi.org/10.1002/bse.2592>
33. Devkota, R., Odame, H. H., Fitzsimons, J., Pudasaini, R., & Raizada, M. N. (2020). Evaluating the effectiveness of picture-based agricultural extension lessons developed using participatory women and editing with smallholder women farmers in Nepal. *Sustainability*, 12(22), Article 9699. <https://doi.org/10.3390/su12229699>
34. East, R. (1993). Investment decisions and the theory of planned behaviour. *Journal of Economic Psychology*, 14(2), 337-375. [https://doi.org/10.1016/0167-4870\(93\)90006-7](https://doi.org/10.1016/0167-4870(93)90006-7)
35. Elahi, E., Zhang, H., Lirong, X., Khalid, Z., & Xu, H. (2021). Understanding cognitive and socio-psychological factors determining farmers' intentions to use improved grassland: Implications of land use policy for sustainable pasture production. *Land Use Policy*, 102, Article 105250. <https://doi.org/10.1016/j.landusepol.2020.105250>
36. Eurostat. (2008). *European classification of economic activities (NACE Rev. 2)*. European Communities. <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>
37. Elahi, E., Khalid, Z., & Zhang, Z. (2022). Understanding farmers' intention and willingness to install renewable energy technology: A solution to reduce the environmental emissions of agriculture. *Applied Energy*, 309, Article 118459. <https://doi.org/10.1016/j.apenergy.2021.118459>
38. Gamel, J., Bauer, A., Decker, T., & Menrad, K. (2022). Financing wind energy projects: An extended theory of planned behavior approach to explain private households' wind energy investment intentions in Germany. *Renewable Energy*, 182, 592-601. <https://doi.org/10.1016/j.renene.2021.09.108>
39. Giacomarra, M., Tulone, A., Crescimanno, M., & Galati, A. (2019). Electric mobility in the Sicilian short food supply chain. *Studies in Agricultural Economics*, 121(2), 84-93. <https://doi.org/10.7896/j.1907>
40. Grandón, E. E., Nasco, S. A., & Mykytyn, P. P. (2011). Comparing theories to explain e-commerce adoption. *Journal of Business Research*, 64(3), 292-298. <https://doi.org/10.1016/j.jbusres.2009.11.015>
41. Harrison, D. A., Mykytyn, P. P., Jr., & Riemenschneider, C. K. (1997). Executive decisions about adoption of information technology in small business: Theory and empirical tests. *Information Systems Research*, 8(2), 171-195. <https://doi.org/10.1287/isre.8.2.171>
42. Hsu, F. C., Zhang, S., Zhang, Y., & Lee, T. J. (2022). Decision-making behavior in the sustainable development of intangible cultural heritage tourism. *International Journal of Tourism Research*, 24(6), 800-812. <https://doi.org/10.1002/jtr.2546>
43. Huo, Y., Ye, S., Wu, Z., Zhang, F., & Mi, G. (2022). Barriers to the development of agricultural mechanization in the North and Northeast China plains: A farmer survey. *Agriculture*, 12(2), Article 287. <https://doi.org/10.3390/agriculture12020287>

44. Hyland, J. J., Heanue, K., McKillop, J., & Micha, E. (2018). Factors influencing dairy farmers' adoption of best management grazing practices. *Land Use Policy*, 78, 562-571. <https://doi.org/10.1016/j.landusepol.2018.07.006>
45. Inkpen, A. C., & Beamish, P. W. (1994). An analysis of twenty-five years of research in the *Journal of International Business Studies*. *Journal of International Business Studies*, 25(4), 703-713. <https://doi.org/10.1057/palgrave.jibs.8490220>
46. Islam, Z., Sabiha, N. E., & Salim, R. (2022). Integrated environment-smart agricultural practices: A strategy towards climate-resilient agriculture. *Economic Analysis and Policy*, 76, 59-72. <https://doi.org/10.1016/j.eap.2022.07.011>
47. Jaidev, U. P. (2018). Transfer climate and transfer of training: The mediating role of transfer intention in hospitality organisations. *International Journal of Services and Operations Management*, 31(1), 19-39. <https://doi.org/10.1504/ijssom.2018.10015169>
48. Jain, S., Singhal, S., Jain, N., & Bhaskar, K. (2020). Construction and demolition waste recycling: Investigating the role of theory of planned behavior, institutional pressures and environmental consciousness. *Journal of Cleaner Production*, 263(5), Article 121405. <https://doi.org/10.1016/j.jclepro.2020.121405>
49. Jin, Y., Lin, Q., & Mao, S. (2022). Tanzanian farmers' intention to adopt improved maize technology: Analyzing influencing factors using SEM and fsQCA Methods. *Agriculture*, 12(12), Article 1991. <https://doi.org/10.3390/agriculture12121991>
50. Kamprom, K., Lertworapachaya, Y., & Lertwongsatien, C. (2017). Factors influencing the use of knowledge management systems: A case study of the manufacturing and service sectors in Thailand. *International Journal of Applied Business and Economic Research*, 15(15), 413-431. https://serialsjournals.com/abstract/29623_32.pdf
51. Kastner, I., Becker, A., Bobeth, S., & Matthies, E. (2021). Are professionals rational? How organizations and households make e-car investments. *Sustainability*, 13(5), Article 2496. <https://doi.org/10.3390/su13052496>
52. Kim, J. J., & Hwang, J. (2020). Merging the norm activation model and the theory of planned behavior in the context of drone food delivery services: Does the level of product knowledge really matter? *Journal of Hospitality and Tourism Management*, 42(1), 1-11. <https://doi.org/10.1016/j.jhtm.2019.11.002>
53. Kokkonen, K., & Ojanen, V. (2018). From opportunities to action — An integrated model of small actors' engagement in bioenergy business. *Journal of Cleaner Production*, 182, 496-508. <https://doi.org/10.1016/j.jclepro.2018.02.013>
54. Kolvereid, L., & Isaksen, E. J. (2017). Expectations and achievements in new firms. *Journal of Small Business and Enterprise Development*, 24(3), 649-668. <https://doi.org/10.1108/jsbed-11-2016-0189>
55. Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behavior. *Entrepreneurship and Regional Development*, 5(1), 315-330. <https://doi.org/10.1080/08985629300000020>
56. Kurata, Y. B., Ong, A. K. S., Andrada, C. J. C., Manalo, M. N. S., Sunga, E. J. A. U., & Uy, A. R. M. A. (2022). Factors affecting perceived effectiveness of multigenerational management leadership and metacognition among service industry companies. *Sustainability*, 14(21), Article 13841. <https://doi.org/10.3390/su142113841>
57. Kurland, N. B. (1996). Sales agents and clients: Ethics, incentives, and a modified theory of planned behavior. *Human Relations*, 49(1), 51-74. <https://doi.org/10.1177/001872679604900103>
58. Lamb, T. L., Myers, P., & Truong, D. (2022). Small unmanned aircraft operator perceived risk factors in the VMUTES model. *Journal of Air Transport Management*, 103, Article 102243. <https://doi.org/10.1016/j.jairtraman.2022.102243>
59. Leby, L. J., & Hashim, A. H. (2019). Mediation analysis of the relationship between environmental concern and intention to adopt green concepts. *Smart and Sustainable Built Environment*, 9(4), 539-555. <https://doi.org/10.1108/SASBE-09-2018-0046>
60. Li, X., Li, H., & Wang, X. (2013). Farmers' willingness to convert traditional houses to solar houses in rural areas: A survey of 465 households in Chongqing, China. *Energy Policy*, 63, 882-886. <https://doi.org/10.1016/j.enpol.2013.09.004>
61. Lynne, G. D., Franklin, C. C., Hodges, A., & Rahmani, M. (1995). Conservation technology adoption decisions and the theory of planned behavior. *Journal of Economic Psychology*, 16(4), 581-598. [https://doi.org/10.1016/0167-4870\(95\)00031-6](https://doi.org/10.1016/0167-4870(95)00031-6)
62. Marchini, S., & Macdonald, D. W. (2012). Predicting ranchers' intention to kill jaguars: Case studies in Amazonia and Pantanal. *Biological Conservation*, 147(1), 213-221. <https://doi.org/10.1016/j.biocon.2012.01.002>
63. Martínez-García, C. G., Dorward, P., & Rehman, T. (2013). Factors influencing adoption of improved grassland management by small-scale dairy farmers in central Mexico and the implications for future research on smallholder adoption in developing countries. *Livestock Science*, 152(2-3), 228-238. <https://doi.org/10.1016/j.livsci.2012.10.007>
64. Meng, B., Lee, M. J., Chua, B.-L., & Han, H. (2022). An integrated framework of behavioral reasoning theory, theory of planned behavior, moral norm and emotions for fostering hospitality/tourism employees' sustainable behaviors. *International Journal of Contemporary Hospitality Management*, 34(12), 4516-4538. <https://doi.org/10.1108/ijchm-02-2022-0151>
65. Middermann, L. H., Kratzer, J., & Perner, S. (2020). The impact of environmental risk exposure on the determinants of sustainable entrepreneurship. *Sustainability*, 12(4), 1534. <https://doi.org/10.3390/su12041534>
66. Mohr, S., & Kühl, R. (2021). Acceptance of artificial intelligence in German agriculture: An application of the technology acceptance model and the theory of planned behavior. *Precision Agriculture*, 22(6), 1816-1844. <https://doi.org/10.1007/s11119-021-09814-x>
67. Muranko, Z., Andrews, D., Newton, E. J., Chaer, I., & Proudman, P. (2018). The pro-circular change model (P-CCM): Proposing a framework facilitating behavioural change towards a circular economy. *Resources, Conservation and Recycling*, 135, 132-140. <https://doi.org/10.1016/j.resconrec.2017.12.017>
68. Mussolino, D., & Calabrò, A. (2014). Paternalistic leadership in family firms: Types and implications for intergenerational succession. *Journal of Family Business Strategy*, 5(2), 197-210. <https://doi.org/10.1016/j.jfbs.2013.09.003>
69. Nguyen, N., & Drakou, E. G. (2021). Farmers intention to adopt sustainable agriculture hinges on climate awareness: The case of Vietnamese coffee. *Journal of Cleaner Production*, 303, Article 126828. <https://doi.org/10.1016/j.jclepro.2021.126828>

70. Nielsen, S., & Pontoppidan, I. C. (2020). Exploring the inclusion of risk in management accounting and control. *Management Research Review*, 43(1), 82-112. <https://doi.org/10.1108/mrr-10-2017-0342>
71. Oh, J.-H., Johnston, W. J., & Curasi, C. F., (2022). Too much of a good thing? The impact of ethical controls and perceived controllability on salesforce job performance. *Journal of Business and Industrial Marketing*, 37(6), 1241-1254. <https://doi.org/10.1108/jbim-01-2021-0021>
72. Ouvrard, B., Abildtrup, J., Bostedt, G., & Stenger, A. (2019). Determinants of forest owners attitudes towards wood ash recycling in Sweden — Can the nutrient cycle be closed? *Ecological Economics*, 164, Article 106293. <https://doi.org/10.1016/j.ecolecon.2019.04.005>
73. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, 88, Article 105906. <https://doi.org/10.1016/j.ijisu.2021.105906>
74. Pattansheti, M., Kamble, S. S., Dhume, S. M., & Raut, R. D. (2016). Development, measurement and validation of an integrated technology readiness acceptance and planned behaviour model for Indian mobile banking industry. *International Journal of Business Information Systems*, 22(3), 316-342. <https://www.inderscience.com/info/inarticle.php?artid=76875>
75. Riemenschneider, C. K., Harrison, D. A., & Mykytyn, P. P., Jr. (2003). Understanding it adoption decisions in small business: Integrating current theories. *Information and Management*, 40(4), 269-285. [https://doi.org/10.1016/s0378-7206\(02\)00010-1](https://doi.org/10.1016/s0378-7206(02)00010-1)
76. Reinke, K., & Gerlach, G. (2021). Linking availability expectations, bidirectional boundary management behavior and preferences, and employee well-being: An integrative study approach. *Journal of Business and Psychology*, 37, 695-715. <https://doi.org/10.1007/s10869-021-09768-x>
77. Rivera-Camino, J. (2012). Corporate environmental market responsiveness: A model of individual and organizational drivers. *Journal of Business Research*, 65(3), 402-411, <https://doi.org/10.1016/j.jbusres.2011.07.002>.
78. Saeedi, S. A. W., Juwaidah, S., & Kelly, W. K. S. (2022). Intention to adopt Industry 4.0 technologies among small and medium enterprises in the Malaysian dairy manufacturing industry. *Food Research*, 6(2), 209-218. [https://doi.org/10.26656/fr.2017.6\(2\).211](https://doi.org/10.26656/fr.2017.6(2).211)
79. Saleh, R. M., Anuar, M. M., Al-Swidi, A. K., & Omar, K. (2020). The effect of awareness, knowledge and cost on intention to adopt green building practices. *International Journal of Environment and Sustainable Development*, 19(1), 33-58. <https://doi.org/10.1504/ijesd.2020.105468>
80. Sargani, G. R., Zhou, D., Raza, M. H., & Wei, Y. (2020). Sustainable entrepreneurship in the agriculture sector: The nexus of the triple bottom line measurement approach. *Sustainability*, 12(8), Article 3275. <https://doi.org/10.3390/su12083275>
81. Sarkar, A., Wang, H., Rahman, A., Abdul Azim, J., Hussain Memon, W., & Qian, L. (2022). Structural equation model of young farmers' intention to adopt sustainable agriculture: A case study in Bangladesh. *Renewable Agriculture and Food Systems*, 37(2), 142-154. <https://doi.org/10.1017/s1742170521000429>
82. Schwartz, S. H. (1977). Normative influences on altruism. *Advances in Experimental Social Psychology*, 10, 221-279. [https://doi.org/10.1016/s0065-2601\(08\)60358-5](https://doi.org/10.1016/s0065-2601(08)60358-5)
83. Shahriar, F. A., & Polonsky, M. J. (2013). Predicting Bangladeshi financial salespeople's ethical intentions and behaviour using the theory of planned behaviour: Implications for developing countries. *Asia Pacific Journal of Marketing and Logistics*, 25(4), 655-673. <https://doi.org/10.1108/apjml-01-2013-0019>
84. Sheppard, B., Hartwick, J., & Warshaw, P. (1988). The theory of reasoned action: a meta-analysis of research with recommendations and future research. *Journal of Consumer Research*, 15, 325-344. <https://doi.org/10.1086/209170>
85. Singh, R., Goel, G., Ghosh, P., & Sinha, S. (2022). Mergers in Indian public sector banks: can human resource practices ensure effective implementation of change? *Management Decision*, 60(3), 606-633. <https://doi.org/10.1108/md-09-2020-1279>
86. Sommer, L., & Haug, M. (2011). Intention as a cognitive antecedent to international entrepreneurship — Understanding the moderating roles of knowledge and experience. *International Entrepreneurship and Management Journal*, 7(1), 111-142. <https://doi.org/10.1007/s11365-010-0162-z>
87. Sutherland, L.-A., & Holstead, K. L. (2014). Future-proofing the farm: On-farm wind turbine development in farm business decision-making. *Land Use Policy*, 36, 102-112. <https://doi.org/10.1016/j.landusepol.2013.07.004>
88. Taofeeq, D. M., Adeleke, A. Q., & Lee, C.-K. (2022). Individual factors influencing contractors' risk attitudes among Malaysian construction industries: The moderating role of government policy International. *Journal of Construction Management*, 22(4), 612-631. <https://doi.org/10.1080/15623599.2019.1641888>
89. Teo, M. M. M., & Loosemore, M. (2001). A theory of waste behaviour in the construction industry. *Construction Management and Economics*, 19(7), 741-751. <https://doi.org/10.1080/01446190110067037>
90. Thompson, D. W., & Hansen, E. N. (2013). Carbon storage on non-industrial private forestland: An application of the theory of planned behavior. *Small-Scale Forestry*, 12(4), 631-657. <https://doi.org/10.1007/s11842-013-9235-5>
91. Tohidinia, Z., & Mosakhani, M. (2010). Knowledge sharing behaviour and its predictors. *Industrial Management and Data Systems*, 110(4), 611-631. <https://doi.org/10.1108/02635571011039052>
92. Tseng, L.-M., & Yu, T.-W. (2019). Disclosure of sales compensations and product recommendations. *Marketing Intelligence and Planning*, 37(3), 310-324. <https://doi.org/10.1108/mip-05-2018-0160>
93. Uhlaner, L. M., Berent-Braun, M. M., Jeurissen, R. J. M., & de Wit, G. (2012). Beyond size: Predicting engagement in environmental management practices of Dutch SMEs. *Journal of Business Ethics*, 109(4), 411-429. <https://doi.org/10.1007/s10551-011-1137-x>
94. Ulhaq, I., Pham, N. T. A., Le, V., Pham, H. C., & Le, T. C. (2022). Factors influencing intention to adopt ICT among intensive shrimp farmers. *Aquaculture*, 547, Article 737407 <https://doi.org/10.1016/j.aquaculture.2021.737407>
95. Umar, U. B., Mas'ud, A., & Matazu, S. A. (2022). Direct and indirect effects of customer financial condition in the acceptance of Islamic microfinance in a frontier market. *Journal of Islamic Marketing*, 13(9), 1940-1957. <https://doi.org/10.1108/jima-12-2019-0267>

96. Wang, G., Lu, H., Hu, W., Gao, X., & Pishdad-Bozorgi, P. (2020). Understanding behavioral logic of information and communication technology adoption in small- and medium-sized construction enterprises: Empirical study from China. *Journal of Management in Engineering*, 36(6). [https://doi.org/10.1061/\(asce\)me.1943-5479.0000843](https://doi.org/10.1061/(asce)me.1943-5479.0000843)
97. Wang, J., & Ritchie, B. W. (2012). Understanding accommodation managers' crisis planning intention: An application of the theory of planned behaviour. *Tourism Management*, 33(5), 1057-1067. <https://doi.org/10.1016/j.tourman.2011.12.006>
98. Wang, Y., Li, H., Xue, L., & Gou, W. (2022). The evolution of the construction waste recycling system and the willingness to use recycled products in China. *Sustainability*, 14(19), Article 12541. <https://doi.org/10.3390/su141912541>
99. Warner, L. A., Rihn, A. L., Fulcher, A., LeBude, A. V., Schexnayder, S., & Joshi, A. (2022). A theory of planned behavior — Informed evaluation of growers' intent to use automated nursery technologies. *Horticulturae*, 8(11), Article 1028. <https://doi.org/10.3390/horticulturae8111028>
100. Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1), 93-112. <https://doi.org/10.1177%2F0739456X17723971>
101. Yang, X., Zhou, X., & Deng, X. (2022). Modeling farmers' adoption of low-carbon agricultural technology in Jiangnan Plain, China: An examination of the theory of planned behavior. *Technological Forecasting and Social Change*, 180, Article 121726. <https://doi.org/10.1016/j.techfore.2022.121726>
102. Yin, Y., Zhang, Y., Li, F., Jiao, J., LeBailly, P., Zhang, Y., & Yin, C. (2022). Driving mechanism for farmers' participation in improving farmland ecosystem: Evidence from China. *Journal of Cleaner Production*, 380(1). <https://doi.org/10.1016/j.jclepro.2022.134895>
103. Zapkau, F. B., Schwens, C., Steinmetz, H., & Kabst, R. (2015). Disentangling the effect of prior entrepreneurial exposure on entrepreneurial intention. *Journal of Business Research*, 68(3), 639-653. <https://doi.org/10.1016/j.jbusres.2014.08.007>
104. Zhang, Y., Gu, J., Shan, M., Xiao, Y., & Darko, A. (2018). Investigating private sectors' behavioral intention to participate in PPP projects: An empirical examination based on the theory of planned behavior. *Sustainability*, 10(8), 26-92. <https://doi.org/10.3390/su10082692>
105. Zhou, Y., Hu, Q., Yao, J., & Qin, X. (2016). The determinants of family business owners' intrafamily succession intention: An interplay between business owners and institutional environment. *Chinese Management Studies*, 10(4), 710-725. <https://doi.org/10.1108/CMS-03-2016-0063>