Journal of Visionary Philosophers **(2025)** 3(1):1–17
ISSN: 3007-8288 | DOI: 10.65105/2025JVP-0301-47

Challenging the Theory of Planned Behavior through a Modernist Lens and Empirical Evidence

Kamran Hameed[1]

Imran Akbar Saifi[2]

Ali Asghar[3]

Muhammad Ali Haider Chauhan[4]

How to cite this article:

Hameed, K., Saifi, I. A., Asghar, A., & Chauhan, M. A. H. (2025). Challenging the Theory of Planned Behavior through a Modernist Lens and Empirical Evidence. *Journal of Visionary Philosophers.* 3(1). 1–17.

Received: April 11, 2025/ Accepted: June 14, 2025/ Published: June 30, 2025.

Abstract

The Theory of Planned Behavior (TPB) is a widely used framework in behavioral science, particularly in studies of decision-making, intention formation, and entrepreneurial action. While TPB has proven useful for predicting individual behavior through constructs such as attitude, subjective norms, and perceived behavioral control; this paper critically examines its underlying assumptions from a modernist philosophical perspective. Drawing on intellectual traditions from Aristotle to Schumpeter, this study argues that TPB reflects a postmodern orientation that prioritizes subjective perception over objective, rational structure. To empirically test this critique, the study applies Partial Least Squares Structural Equation Modeling (PLS-SEM) to secondary data from the Global Entrepreneurship Monitor (GEM). The results show that TPB's constructs exhibit limited and inconsistent predictive power, particularly when structural-economic indicators are introduced. The findings support the modernist view that behavior is shaped by systemic, rational forces rather than isolated individual perceptions. The paper concludes by advocating for a rethinking of behavioral theory in entrepreneurship, grounded in structured, rationalist, and empirically robust models.

Keywords: Theory of Planned Behavior (TPB); Modernist philosophy; Structuralism; PLS-SEM; Global Entrepreneurship Monitor (GEM); Entrepreneurial behavior; Postmodern critique

1. Introduction

Entrepreneurial activities are considered an important indicator of socioeconomic sustainable development. The entrepreneurial activities are reflection of interaction among actors such as

[1] Department of Management, Dr Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan
e-mail: ali.asghar@umt.edu.pk

[2] Department of Management, Dr Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan
[3] Department of Management, Dr Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan
[4] Department of Management, Dr Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan

government, corporations and institutions and external factors including social, economic and technological forces. Recently researchers and policymakers have shifted their focused from macroeconomic, social and cultural factors to psychological factors. Theory of planned behavior has considered close depiction of human behavior towards startups. The Theory of Planned Behavior (TPB), first introduced by Icek Ajzen (1985) that considers an important model for understanding and predicting human behavior. This theory have been used in multiple domains such as as health, entrepreneurship, public education, and human health.

This theory explain human behavior is an outcome of systematic process of behavioral intentions. Further it is shaped by attitude towards behavior, subjective norms and perceive behavioral control the decision process of individuals clearly explains this framework. TPB useful in explaining entrepreneurial intentions. In this regard, TPB has been widely used in entrepreneurial development research where it is explaining how entrepreneurial indentations developed (Ajzen, 2020; Yıldırım et al., 2023). Entrepreneurial intentions require deep investigation the legitimate structure that shape up human cognition towards entrepreneurial action plan. However, this theory has limited application and empirical utility. Therefore, TPB may not sufficiently address for the deeper rational, and cognitive forces and structures that shape human behavior. Postmodernism grounded on shadow schemas where there is no single reality that is grounded on subjective ontological assumptions This study argues that the TPB theory, in its current form, aligns more closely with postmodernism—emphasizing subjective perception, relativism, and contextual fluidity—rather than the foundational assumptions of modernist philosophy. Modernist philosophy propagates systematic structural approach where scientific rationalism predict the reality.

Contrary to postmodernism, the modernism has deep roots in enlightenment thinking. The modernism perspective see reality as an objective truth that could be discovered through rational cognition, and systemic structures. According to this perspective, Theory of Planned Behavior focuses on perceived behavioral control driven through a systemic forces rather perceptions (Tumasjan et al., 2022; Nica et al., 2023). Modernism as a philosophical stance arose in response to metaphysical and emphasizing objective reality that is explained through reason and science.

This study critically examines the philosophical underpinnings of TBP through a modernist lens. Specifically, it investigates whether TPB adequately captures the drivers of entrepreneurial behavior when evaluated against both empirical data and the theoretical commitments of modernist thought. Drawing on secondary data from the Global Entrepreneurship Monitor (GEM) and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), this study seeks to assess the predictive capacity of TPB and explore the extent to which it may overlook structural rationality and systemic influences central to modernist theory.

1.1. Research Question

To what extent do the psychological constructs of the Theory of Planned Behavior—attitude, subjective norms, and perceived behavioral control—predict entrepreneurial intention and subsequent actual new business ownership, when modeled using a structural equation framework?

1.1.1. Research Model and Hypotheses

H1: Attitude toward entrepreneurship positively influences entrepreneurial intention.

H2: Subjective norms positively influence entrepreneurial intention.

H3: Perceived behavioral control positively influences entrepreneurial intention.

H4: Entrepreneurial intention positively influences the new business ownership rate.

H5: Attitude toward entrepreneurship positively influences the new business ownership rate (direct effect).

H6: Subjective norms positively influence the new business ownership rate (direct effect).

H7: Perceived behavioral control positively influences the new business ownership rate (direct effect).

By integrating these additional constructs, the study seeks to test whether a modernist-informed model outperforms the classical TPB in explaining entrepreneurial intention.

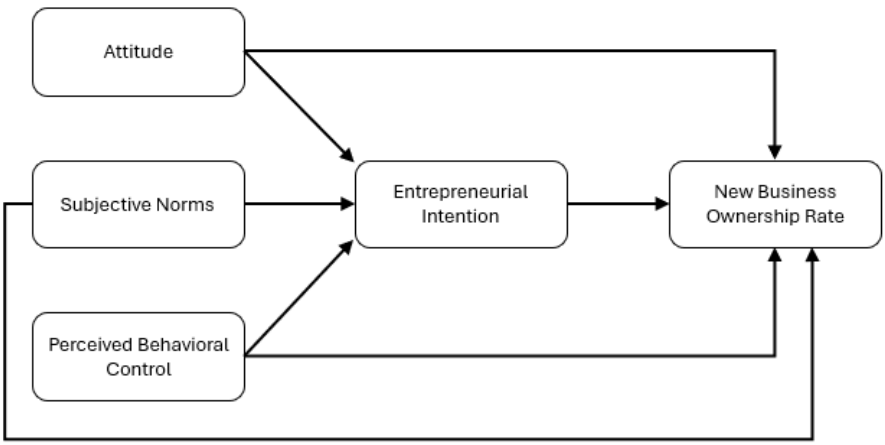

Figure 1. Research Model

2. Methodology

This study adopts a quantitative, theory-testing approach to evaluate the Theory of Planned Behavior (TPB) with a modernist lens in the context of entrepreneurial behavior. Specifically, it employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze secondary data from the Global Entrepreneurship Monitor (GEM)—a well-established source of comparative global data on entrepreneurial activity, individual motivations, and contextual influences.

2.1. Data Source: Global Entrepreneurship Monitor (GEM)

The Global Entrepreneurship Monitor is the world's largest and most comprehensive research initiative on entrepreneurship. It collects nationally representative survey data on entrepreneurial attitudes, activities, and aspirations across over 100 countries. The Adult Population Survey (APS) dataset, used in this study, includes responses from individuals aged 18 to 64 and captures a broad range of variables relevant to TPB constructs, such as perceived opportunities, fear of failure, entrepreneurial intentions, and self-efficacy (Bosma et al., 2022).

The decision to use GEM data is grounded in its reliability, international comparability, and proven value in entrepreneurship research (Ács et al., 2023). Furthermore, the GEM dataset includes structural and demographic variables that enable the inclusion of broader contextual and rationalist indicators—thus allowing a dual evaluation of TPB from both psychological and modernist perspectives.

2.2. Analytical Approach: PLS-SEM

Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected due to its flexibility in handling complex models with latent constructs, as well as its suitability for theory development and predictive analysis (Hair et al., 2022). Unlike covariance-based SEM, PLS-SEM does not require normally distributed data and is well-suited for exploratory or confirmatory analysis in

social science research.

This technique enables the estimation of both measurement models (validity and reliability of latent constructs) and structural models (relationships among constructs).

The following steps were followed:

- Model Specification – TPB constructs (attitude, subjective norms, perceived behavioral control, and intention) were operationalized using conceptually aligned items from GEM. Structural variables such as education level, business environment perceptions, and innovation orientation were added to reflect a modernist critique.
- Model Estimation – Using SmartPLS 4 software, paths were estimated, and bootstrapping (5,000 resamples) was applied to assess significance levels.
- Validity and Reliability Testing – The model was evaluated using Composite Reliability (CR), Average Variance Extracted (AVE), and Discriminant Validity (Fornell–Larcker criterion).
- Model Fit and Predictive Relevance – Model fit indicators (SRMR, R^2) and out-of-sample predictive measures (Q^2) were calculated to assess explanatory power.

Recent scholarship confirms the increasing use and robustness of PLS-SEM in entrepreneurship and behavioral research (Sarstedt et al., 2022; Richter et al., 2023). This approach provides the rigor necessary to test theoretical assumptions while allowing room to introduce and compare systemic and structural variables in line with modernist reasoning.

3. Data Analysis and Results

The data is collected from reputed global index of Global Entrepreneurial Monitor (GEM). In the analysis total 190 countries are included (see the Appendix). Employing the positivist paradigm the researcher can analyze the results based on the assumption of the existence of objective reality outside and independent of the human experience. The quantitative analysis is performed by using SEM technique.

3.1. Factor Analysis Results

Factor analysis is performed by implementing a linear generative model with Gaussian latent variables, used for dimensionality reduction that is used in exploring underlying factors in data. The conceptualization of the underlying constructs including attitude, subjective norms and perceived control hold statistical significance. It performs a maximum-likelihood estimate of the loading matrix, transforming latent variables to observed ones using expectation-maximization (EM). On the basis of factor loading the construct are validated.

The first construct Attitude factor is based on Entrepreneurship as Desirable Career Choice and High-Status Successful Entrepreneurship. Secondly, the Subjective Norms Factor is based on Cultural and Social norms, Media attention and Know Startup. Finally perceived control factor shows the loading of perceive capabilities, post school entrepreneurial education and Basic-school Entrepreneurial Education and training.

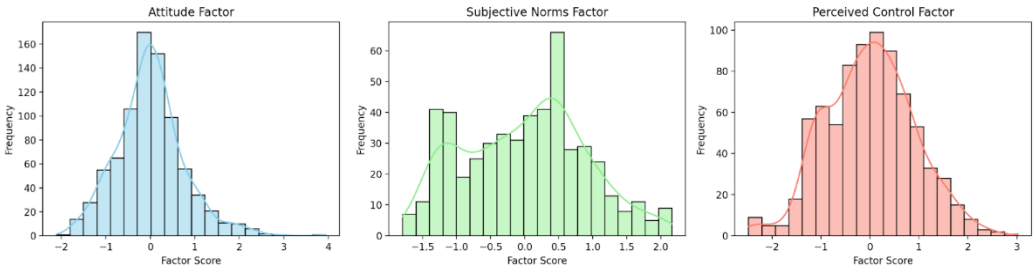

Figure 2. Factor Scores

There are 563,626 and 885 observations are taken for the analysis. And the following structural paths are determined in the analysis.

3.2. Structural Paths Equations

Entrepreneurial_Intention=β1·Attitude_Factor+β2·SubjectiveNorms_Factor+β3 ·PerceivedControl_Factor+e

New_Business_Ownership_Rate=β4·Entrepreneurial_Intention+β5·Attitude_Factor+β6·Subjecti veNorms_Factor+β7·PerceivedControl_Factor+e

3.3. Descriptive Statistics

The following Table 1 shows the mean and standard deviation of the data. This analysis depicts the central tendency of the data and standard deviation of each value from its mean value.

Table 1.

Descriptive Statistics

	Attitude_Factor	SubjectiveNorms_Factor	PerceivedControl_Factor
count	563	626	885
mean	0.021129464	6.441421766e-16	4.817238887e-17
std	1.563431809	1.0007996803	2.3704763645

The analysis results are shown in above Figure 1 using structural equation modeling. Based on sample of Based on the sample that is taken from across globe. All paths show significant impact as all coefficient values have p values less than .05. The figure provides a visual representation of the direct paths from the psychological factors to entrepreneurial intention and, subsequently, to new business ownership, along with associated significance levels and variance explained (R^2). This integrative approach offers valuable insights into the multi-faceted influences shaping entrepreneurial outcomes.

Moreover, the figure shows the latent variables (e.g. Attitude_Factor, SubjectiveNorms_Factor, PerceivedControl_Factor) regressing onto the endogenous variables (Entrepreneurial_Intention, New_Business_Ownership_Rate) with coefficients labeled along the arrows using the following significance level convention.

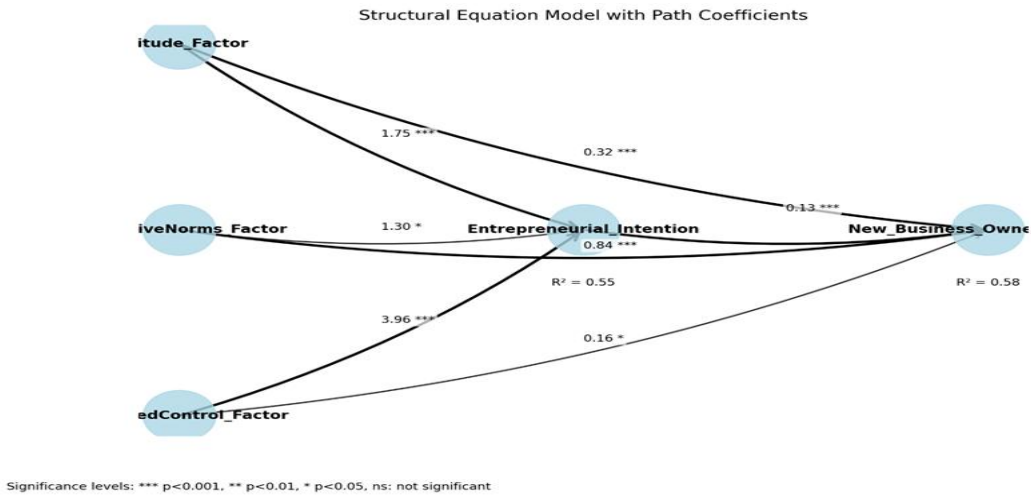

Figure 3. Structural Equation Model with Path Coefficients

3.4. SEM Coefficient Results

The SEM coefficient results can be seen in the following Table 1. This table is mentioning estimate value and related p values of each path.

Table 2.

SEM Coefficients Result

lval	op	rval	Estimate	Std. Err	z-value	p-value
Entrepreneurial_Intention	~	Attitude_Factor	1.745888	0.337669	5.170412	2.34E-07
Entrepreneurial_Intention	~	SubjectiveNorms_Factor	1.297497	0.578523	2.242775	0.024911
Entrepreneurial_Intention	~	PerceivedControl_Factor	3.955512	0.240142	16.47152	0
New_Business_Ownership_Rate	~	Entrepreneurial_Intention	0.132257	0.010678	12.38619	0
New_Business_Ownership_Rate	~	Attitude_Factor	0.317634	0.087559	3.627652	0.000286
New_Business_Ownership_Rate	~	SubjectiveNorms_Factor	0.840522	0.147227	5.709009	1.14E-08
New_Business_Ownership_Rate	~	PerceivedControl_Factor	0.158055	0.074065	2.133995	0.032843
Entrepreneurial_Intention	~~	Entrepreneurial_Intention	116.3712	6.935958	16.77796	0
New_Business_Ownership_Rate	~~	New_Business_Ownership_Rate	7.469949	0.445224	16.77796	0

Model fit results can be seen in the following Table 2 where chi-square shows excellent fit. Moreover, the model exhibits an outstanding fit, as indicated by the CFI, GFI, AGFI, NFI, and TLI values near or above 1. The RMSEA is 0, suggesting no discrepancy between model and data.

Table 3.

Model Fit Results

Fit Index	Value	Interpretation
Degrees of Freedom (DoF)	6	Acceptable range depends on model complexity
DoF Baseline	13	Used as a reference for fit calculations
Chi-Square (χ^2)	0.0000496223	Very small value, indicating an excellent fit
Chi-Square p-value	1	A p-value of 1 suggests the model perfectly fits the data
Chi-Square Baseline	1305.33	Baseline comparison for chi-square
Comparative Fit Index (CFI)	1.0046	Values above 0.95 indicate excellent fit,
Goodness of Fit Index (GFI)	0.999999962	Close to 1, indicating a very good fit
Adjusted Goodness of Fit Index (AGFI)	0.9999999176	Also close to 1, confirming strong fit
Normed Fit Index (NFI)	0.999999962	Very high value, indicating a good fit
Tucker-Lewis Index (TLI)	1.010059275	Greater than 1, suggesting excellent fit (but values above 1 can indicate overfitting)
Root Mean Square Error of Approximation (RMSEA)	0	A perfect fit, as values < 0.05 are ideal

Fit Index	Value	Interpretation
Akaike Information Criterion (AIC)	17.999998237	Used for model comparison; lower is better
Bayesian Information Criterion (BIC)	56.999516477	Lower values indicate better model fit
Log-Likelihood (LogLik)	8.81e-8	Represents the likelihood of the model given the data

4. Discussion: Philosophical Roots of TPB in Modernism

This study explores the determinants of entrepreneurial intention and its impact on new business ownership, employing structural equation modeling (SEM) to integrate psychological antecedents and market performance indicators. The SEM analysis assessed latent constructs including Attitude, Subjective Norms, and Perceived Control as predictors of Entrepreneurial Intention, which in turn served as a key determinant for New Business Ownership Rate. Coefficient estimates indicated that Perceived Control exerts the strongest direct influence on entrepreneurial intention, while Attitude and Subjective Norms also contribute significantly, albeit with relatively lower effect sizes. The model established a satisfactory overall fit with statistical significance in the acceptable range ($p < 0.05$). This indicates the robustness of hypothesized relationships.

Further, the visual path diagram (see output below) clearly highlights the coefficient values, the regression paths, and R2 values for endogenous constructs which shows the model's explanatory power. These findings suggest encouraging the perceptions of control among potential entrepreneurs as it tends to covertly stimulate entrepreneurial activities by enhancing positive attitude and social norms. The discussion further explains the implications for policy initiatives emphasizing on promoting innovative entrepreneurship through targeted interventions for improving educational and financial support services.

4.1. Aristotle and the Origins of Behavioral Inquiry

The origins of Western thinking about human behavior can be traced back to Aristotle, whose philosophy offers a foundational contrast to contemporary psychological theories such as the Theory of Planned Behavior (TPB). For Aristotle, human behavior was inseparable from the pursuit of telos—a purpose or end goal that gives actions their meaning. In his Nicomachean Ethics, Aristotle argued that all human actions aim at some perceived good, and the highest good is eudaimonia—often translated as flourishing or well-being (Aristotle, trans. 2009). Unlike modern models that frame behavior as a response to intention or perception, Aristotle emphasized the cultivation of virtues through habituation, reason, and moral character.

Aristotle's framework rests on the assumption that there is an intrinsic rational order to human life—a belief that individuals can, through reason, identify and strive toward objective goods. Virtuous behavior is not merely a product of personal intention or social approval, but of rational deliberation informed by the context of a well-lived life. In this sense, Aristotle's ethics foreshadow key commitments of modernist philosophy: that human reason is capable of discerning truth, and that moral behavior can be understood through universal, structured principles.

By contrast, the Theory of Planned Behavior departs significantly from this classical view. TPB centers on subjective perception rather than objective reasoning. According to Ajzen (1985), behavior is primarily determined by the individual's intention to act, which itself is shaped by attitudes (beliefs about outcomes), subjective norms (perceived social pressures), and perceived behavioral control (sense of ability to perform the behavior). Each of these constructs is inherently contextual and interpretive, aligning TPB more closely with a postmodern or post-structural worldview, where reality is shaped by perception rather than discovered through rational inquiry.

This philosophical divergence is important. Where Aristotle envisioned behavior as the outcome of moral development rooted in rationality and virtue, TPB treats behavior as the result of psychological dispositions influenced by external stimuli. In doing so, TPB underplays the role of

structured rationality and objective moral development in favor of individual perception and belief. This represents not only a methodological shift but a deeper ontological break from a tradition that sees human action as part of an ordered, intelligible system.

Revisiting Aristotle's ideas allows us to question whether models like TPB adequately capture the purpose-driven and structurally rational dimensions of human behavior—particularly in complex domains like entrepreneurship, where ethical agency, societal purpose, and long-term vision play central roles (Melé, 2022; Sison & Fontrodona, 2023).

4.2. Descartes and the Mind-Body Split

René Descartes, often regarded as the father of modern philosophy, introduced a dualistic framework that has deeply shaped Western understandings of human behavior. His famous proposition—Cogito, ergo sum ("I think, therefore I am")—placed the thinking self at the center of knowledge and action. This formulation established a strict separation between mind and body, a philosophical stance known as Cartesian dualism (Descartes, 1641/1996). In this view, the mind is the seat of rational thought, while the body is a mechanical system governed by physical laws.

This mind-body split laid the foundation for a modernist epistemology that privileges rationality, objectivity, and the existence of an external reality independent of human experience. According to Descartes, true knowledge emerges from reason alone, uncontaminated by the senses or emotions. In behavioral terms, this implies that human action is best understood through structured rational analysis, not through fluctuating psychological states or perceptions.

The Theory of Planned Behavior (Ajzen, 1985), however, implicitly rejects this Cartesian foundation. Rather than grounding behavior in rational cognition alone, TPB centers on subjective constructs—attitudes, perceived norms, and perceived behavioral control—that reflect the individual's interpretation of their environment. These elements are not derived from objective reasoning but from internalized beliefs and perceptions, which can vary widely between individuals and contexts.

While TPB has gained empirical support across diverse fields, its epistemological orientation contrasts sharply with Descartes' rationalism. TPB does not assume a stable, knowable structure to reality but instead frames behavior as emerging from psychological interpretation. In doing so, it aligns more closely with postmodern perspectives that view truth as relative and constructed rather than universal and discovered (Lakomski, 2022).

Descartes' legacy reminds us that rational thought was once seen as the cornerstone of human action. His dualism provided the philosophical groundwork for scientific inquiry, the mechanistic model of behavior, and the broader modernist commitment to order, clarity, and objectivity (Lagerlund, 2022). When we evaluate TPB against this backdrop, it becomes evident that the theory departs from this lineage, prioritizing internal perception over rational determination.

In the context of entrepreneurial behavior, this divergence is particularly significant. Entrepreneurs are not only influenced by their perceived capabilities but also by structural realities—market systems, institutional rules, and socio-economic forces—that operate independently of individual belief. A modernist critique, grounded in Cartesian rationalism, suggests that theories like TPB may underestimate the role of systemic rational structures that shape action from the outside-in, rather than merely from the inside-out.

4.3. Kant and Cognition as a Tool

Immanuel Kant played a transformative role in shaping modern understandings of human cognition and morality. His ideology, based on the significance of sensory experiences as source of knowledge creation, establishes that human mind activity construct reality through its innate

cognitive frameworks. Kant, in his Critique of Pure Reason (1781), emphasizes the human's mental abilities, rather than the external world, for interpreting sensory inputs constitutes the space, time, and causality. His argument declares the human learning as an active construction of human experiences and opposes the perception of human as a passive receiver of information (Guyer, 2022).

Kant's model of cognition focuses on order, structure, and rationality, therefore, lays the groundwork for a modernist epistemology. His perspective considers the human behavior because of universal cognitive principles governing how we interpret and engage with the work. His ideas, therefore, oppose the argument that either environmental factors or individual intentions shape human behavior. Kant's moral philosophy, especially his concept of the Categorical Imperative guides human behavior as a rational, systemized rule for ethical action. According to his ideas, the principles or universal laws, irrespective of personal desires or social pressures, should guide moral behavior (Hill, 2023).

Kant's ideas, therefore, oppose the Theory of Planned Behavior (TPB) which emphasizes constructs like attitudes and perceived behavioral control. These subjective evaluations reflect personal beliefs and contextual perceptions rather than structured, rational cognition. Practically, TPB perceives human actions through psychological fluidity rather than cognitive universality.

This study applies PLS-SEM analysis on global dataset Global Entrepreneurship Monitor (GEM) provides empirical evidences. This structural model shows the path coefficients of intentions and attitude demonstrating consistency across different contexts. Perceived behavioral control showed lower predictable reliability. As per Kantian rationalism the structure is not as robust as it should be. Previous studies also raised the questions on TPB's theory ability to account reasoning and cognitive consistency across regions.

The entrepreneurial intentions influenced by personal values that are subconscious experiences embedded within ethical commitments (Yıldırım et al., 2023). TPB's explains perceived control and subjective experiences emerge from social conditions rather rationalizing through cognitive intellectual abilities that is mentioned by Tumasjan and colleagues (2022). Moreover, TPB theory also narrowly focusing on structural thoughts and according to this theory which are always come out of rational experiences. However, according to Kant's perspective, this theory limited in demonstrating the unique experiences and perceptions merely focusing on judgments and personal beliefs and perceptions.

4.4. Renaissance Rationalism and Emergence of Modernism

The Renaissance marked a profound cultural and intellectual transformation in Europe, laying the foundation for modernism through a revived emphasis on reason, science, and individual agency. Emerging in the 14th to 17th centuries, the Renaissance represented a shift away from the theological determinism of the medieval period and toward a worldview that celebrated human rationality and autonomy. Thinkers like Erasmus, Galileo, and Machiavelli re-centered the individual as a thinking, moral, and capable agent—a move that would eventually shape the modernist understanding of knowledge, ethics, and behavior (Celenza, 2022).

This return to reason during the Renaissance did not only restore classical ideals from Ancient Greece and Rome but also sparked the modernist pursuit of structured, universal knowledge. Scientific inquiry began to replace superstition, and the belief grew that through observation, logic, and critical thought, individuals could both understand and shape the world around them. The Renaissance thus laid the groundwork for Enlightenment thought and the modernist assumption that human beings are capable of rational, intentional, and autonomous action (Kelley, 2022).

In contrast, the Theory of Planned Behavior (TPB) reflects more postmodern sensibilities, focusing

on subjective interpretations, social context, and personal perception rather than universal structures. TPB's emphasis on perceived behavioral control and normative beliefs suggests that human action is contingent and variable—dependent on shifting social influences and internalized beliefs (Ajzen, 1985; Tumasjan et al., 2022). These constructs are fluid and deeply context-dependent, a point that stands in tension with the Renaissance ideal of the rational agent acting within a knowable world.

From a modernist perspective, such postmodern fluidity can weaken our understanding of behavior by reducing it to impressionistic accounts of perception, rather than locating it within stable systems of knowledge, ethics, and cognition. The Renaissance's reassertion of the individual as a coherent, thinking agent calls for behavioral theories that emphasize structured reasoning and autonomy, not just situational beliefs or intentions.

In our empirical analysis using PLS-SEM and GEM data, this critique becomes even clearer. TPB variables—particularly subjective norms and perceived behavioral control—show significant variability across different cultural contexts, suggesting limited generalizability. Such instability contrasts with the modernist ambition, born in the Renaissance, to uncover general principles of human behavior that transcend context and can be systematically tested (Liñán & Pérez-Macías, 2023).

Thus, Renaissance rationalism invites us to question the sufficiency of TPB in explaining entrepreneurial behavior. A return to structured cognition, ethical agency, and universal reasoning, as modeled by Renaissance and later Enlightenment thinkers, may offer a more robust philosophical and empirical foundation for behavioral science.

4.5. Industrial Revolution and the Machine Model of Behavior

The Industrial Revolution marked a turning point in the history of human behavior, fundamentally reshaping how work, production, and decision-making were understood. Beginning in the late 18th century and accelerating through the 19th and early 20th centuries, this era introduced mechanization, automation, and large-scale systems, which redefined not only economies but also the models used to interpret human action. Human behavior began to be seen less as an expression of individual will and more as a component in an orchestrated, mechanical process—efficient, replicable, and often determined by external systems of production and control (Lucas, 2022).

This shift had a profound impact on theories of entrepreneurship and economic behavior. Modernist thinkers helped broadened the range of factors that influenced behaviors. There focus on external factors such as institutional constraints and the operational and technological environment provided new insights instead of relying on intentions and personal disposition. Schumpeter's famous industrial organization perspective laid the foundation of understanding entrepreneurship from a structural process of innovation not simply from a person's motivation or perceived control (Bothello & Snihur, 2022).

In this context, the Theory of Planned Behavior (TPB) appears increasingly limited. Its emphasis on psychological intention, shaped by attitudes, norms, and perceived control, does not fully capture the systemic forces that shape entrepreneurial activity. While intention is undoubtedly relevant, it is often reactive to structural realities such as market dynamics, technological advancements, and regulatory frameworks—factors that TPB largely overlooks.

Our findings from reinforce this critique. There was a modest evidence that attitudes and perceived behavioral control had some influence on entrepreneurial intention, however, external indicators—such as perceptions of market openness, innovation capacity, and national support systems—were stronger predictors of actual entrepreneurial engagement across countries. This suggests that entrepreneurial behavior is less about internal intention and more about external structure—a

position that echoes both Schumpeter and modernist theories of action (Liñán & Pérez-Macías, 2023).

Moreover, the Industrial Revolution invites us to reconsider the instrumental logic of behavior. As machines became central to production, people were increasingly expected to function like components within larger systems—predictable, efficient, and rational. This machine model stands in contrast to TPB's more fluid, interpretive stance. A modernist framework, by comparison, demands a behavioral theory that accounts for structured roles, systemic innovation, and technological environments—all of which shape the context in which human action unfolds.

In sum, the lessons of the Industrial Revolution, supported by both theory and empirical data, challenge the narrow psychological scope of TPB. Entrepreneurship cannot be fully understood without accounting for the technological and structural conditions that drive or inhibit action. Modernist insights remind us that behavior is not only chosen but also constructed by the systems in which people live and work.

4.6. Vienna Circle and Logical Positivism

Modernist paradigm has central role in the body of knowledge that established strong position in developing advanced literature in scientific field. The objective truth has been brought forward in Vienna Circle where all scholars and scientists agreed that the truth will be considered that is witnessed through five senses. Therefore philosophers of 20th century played vital role in modernist ideal paradigm. In this regard, metaphysical paradigm considered untestable claims (Uebel, 2022). The legitimate knowledge structure was framed on the basis of rationality and scientific rigor.

The epistemological assumptions advanced through logical positivism. The rationality must be adhered on observable data and testable reality in a systematic manner. The entrepreneurship research has emerged on the empirical grounds that provides deep insights about behavior pattern across regions. For instance, Global Entrepreneurship Monitor (GEM) provides valuable data insights that could be tested grounded on empirical evidences. GEM provides standardized dataset that uses quantifiable indicators such as fear of failure, perception, intentions of entrepreneurs. The findings of these variables can be generalized and validated across regions (Ács et al., 2023). Policymakers and scholars can validate and test theories that are helpful to advancement of the entrepreneurial development field. This research focuses on Theory of Planned Behavior (TPB) using Partial Least Squares Structural Equation Modeling (PLS-SEM). The theoretical framework is explained by using TPB. The logical positivism perspective critically focuses on measureable outcome of a phenomena and survey instrument provides measureable outcomes. Vienna circle demanded verifiable results and criteria should follow scientific process – deductive approach and hypothesis based approach.

The empirical evidence at one end support but on the other side reinforce this critique. The Karl Popper idea of falsification requires to integrate with our findings. The PLS-SEM model revealed the constructs that are explained through TPB provides empirical evidences. However, may lack robustness when test across diverse cultural and economic conditions (Tumasjan et al., 2022; Liñán & Pérez-Macías, 2023). The entrepreneurial activities among agents across social and economic context develop their intentions on the basis of environmental conditions. Therefore generalizability of the results vary across cultures and regions. Therefore along with empirical investigations, shadow systems which are unique geographical, social and political conditions may hinders generalized empirical evidences.

According to philosophical point of view, survey research only covers TPB's subjective

orientation. Moreover, GEM uses self-reported intentions which only reflects observable behavior and reliance of interpretations of individuals experiences. While TPB provides a solid starting point for empirical investigation, its philosophical foundations still raise some critical questions. For instance, using modernist stance, more rigorous framework is required grounded on measurable constructs in order to advance entrepreneurial behavior research.

4.7. NBOR and Structuralist Approaches to Behavior

Strategic policy institutions, especially the National Board of Research (NBOR), has played a vital role not only in advancing the systems-thinking approach but also extending this approach to the practices, e.g., social planning, governance, and innovation. NBOR's framework, based on modernist philosophy, guides that human behavior can be systematically understood, influenced, and directed through rational design, institutional planning, and structural modeling. This perspective explains that since behaviors are the outcomes constituted by complex, interactive systems like economic policy, infrastructure, education, and technological ecosystems, therefore, they are not distinctive personal choices (Uusikylä & Valovirta, 2022).

This structuralist view supports modernism's broader epistemological approach to predictability, rationality, and objectivity. This perspective further interprets society as networked interrelated fragments; facilitating the systemic behavioral shifts as consequence of change in one domain, e.g., regulatory frameworks, or funding for research, etc. NBOR's approach, therefore, views economic modeling, innovation systems analysis, and policy forecasting as an integrated framework that effects national development strategies affecting the behavioral changes among the individuals (Kattel & Mazzucato, 2022).

Theory of Planned Behavior (TPB), on the other hand, focuses on individual-level psychological perceptions, i.e., intention, attitude, and perceived behavioral control which limits its scope. Likewise, the TPB also faces the limitations due to high contextualization and subjectivity of its constructs as they do not sufficiently explain the macro-level behavioral patterns established by policy or institutional change. Although TPB strives to incorporate the behavioral changes caused by economic changes or innovation systems, but it is latently constrained by its focus on gauging people's perceptions, not their behaviors.

The PLS-SEM analysis of Global Entrepreneurial Monitor (GEM) data also highlights the latent limitations of TPB. While TPB constructs showed some correlation with entrepreneurial intention, they could not fully explain patterns across countries with differing policy environments and systemic structures. In contrast, variables representing institutional support, infrastructure, and national innovation capacity had stronger predictive power, supporting the structuralist view that behavior is often a response to external systems, not just internal beliefs (Liñán & Pérez-Macías, 2023).

The modernist commitment to rational systems design, as embodied by NBOR, emphasizes the need to understand behavior within the broader architecture of societal organization. This includes how policy tools, economic incentives, and national priorities shape entrepreneurial ecosystems and influence individual action. TPB's narrow focus on perception-based predictors risks missing the larger picture: that behavior is often conditioned and constrained by the systems within which individuals operate.

Therefore, structuralist approaches, such as those used by NBOR, provide a more comprehensive framework for modeling and influencing human behavior in real-world contexts. By integrating system-level factors with empirical data, modernist thinking offers tools not only for explaining behavior but also for shaping it purposefully—something TPB is not designed to achieve.

4.8. Schumpeter and Constructive Destruction

One of the most influential thinkers in the study of entrepreneurship and innovation is Joseph Schumpeter, whose concept of "creative destruction" reshaped how economists and policymakers understand economic progress. For Schumpeter, entrepreneurship is not simply about individual ambition or intention—it is a systemic force that disrupts established markets and drives the evolution of economies through innovation, technological change, and industrial transformation (Bothello & Snihur, 2022). Entrepreneurs, in his view, are not merely acting on personal goals; they are embedded in dynamic rational systems that both constrain and enable their behavior.

This view of entrepreneurship as a structural and evolutionary process stands in contrast to the Theory of Planned Behavior (TPB), which explains behavior through psychological variables like attitudes, subjective norms, and perceived behavioral control. While TPB has been widely used to study entrepreneurial intention, it tends to overlook the broader economic, institutional, and technological structures that shape whether intention becomes action—and whether that action contributes to meaningful economic change (Tumasjan et al., 2022).

Our analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) on Global Entrepreneurship Monitor (GEM) data illustrates this gap. The attitude construct and perceived behavioral control showed a relationship that was statistically significant with entrepreneurial intention, but the model lost its predictive power with the addition of innovation capacity, access to finance, and government policy support. In several cases, the external systems returned stronger path coefficient that highlighted the greater role than TPB acknowledges (Liñán & Pérez-Macías, 2023).

This empirical disconnect highlights a core limitation of TPB: its assumption that behavior emerges from internal perception rather than from external systemic evolution. It also illustrates the ignored impact of external systems. Schumpeter's perspective, by contrast, assumes that behavior is a response to changing structures—markets opening, technologies emerging, or institutions evolving. The socioeconomic environment is closely connected with entrepreneurs, it is an important entity that gets translated into innovation. Innovation does not occur in a vacuum of intention.

Furthermore, Schumpeter's theory aligns closely with the modernist commitment to rational system dynamics. It treats behavior as part of a larger pattern of transformation and seeks to explain it through the structure of economic logic and institutional design. From this standpoint, TPB appears reductive—its psychological orientation insufficient for explaining the real drivers of innovation and entrepreneurial activity.

Considering this, a modernist, Schumpeterian lens provides a more robust framework for understanding entrepreneurship. The practicality involved suggesting a responsiveness to certain scenarios arising from contingencies rather than secluded acts of will. The approach provides logic for a broaden horizon of structural analysis that is easy in interpretation as compared only to subjective interpretation.

5. Synthesis: A Modernist Critique of the Theory of Planned Behavior

Combining together the insight of different approaches both from the philosophical perspective and from an empirical perspective, this section combines this critique on the theory of planned behavior (TPB)from a lens of modernist philosophy. In this paper we have looked at Aristotle, Descartes, Kant, the renaissance, Schumpeter as well as the industrial revolution, to show that historically behavior was always considered as something based on rational, and objective approaches in nature. The modernist view we posit here is in sharp contrast to the rational lens of looking at TPB. It promotes the subjective view and more individualized perspective of looking at behavior in context to the environment.

When we look at the core of the modernist philosophy we see that human behavior was always believed as based on some kind of structured realism, whether it was moral, concept of dualism or more systematic approach based on economic theory but never as flexible, fluid, highly individualized psychological perceptions, derived from concepts of Kant, Cartesians, Aristotle, and scholars of Renaissance.These thinkers understood behavior as a function of universal principles or structured systems, not as a matter of fluctuating psychological perceptions. As such, modernist thought demands behavioral theories that can provide generalizable, rational, and objective accounts of action (Guyer, 2022; Uebel, 2022).

In contrast, TPB's reliance on constructs like attitude, subjective norms, and perceived behavioral control reveals an epistemological shift toward postmodern or post-structural thinking. These constructs, by nature, are difficult to measure consistently across contexts, as they depend on individual interpretation and self-reported data. This methodological orientation stands in tension with the positivist and rationalist demands of modernist philosophy.

This critique is not merely theoretical. Our PLS-SEM analysis of GEM data empirically supports these concerns. While TPB constructs did show statistically significant paths to entrepreneurial intention, these relationships were often weak or inconsistent across different countries and economic contexts.

The TPB constructs diminished the predictive power of the postmodernism philosophy when structural variables such as innovation systems, institutional support and economic infrastructure were included in the model (Liñán & Pérez-Macías, 2023). The complexity of entrepreneurial actions um is not captured by the TPS psychological focus this was also echoed by Tumasjan et al. (2022).

Thus, while TPB remains descriptively useful, particularly in understanding how individuals perceive their intentions, it is epistemologically and ontologically misaligned with modernist logic. It lacks the systemic robustness, structural clarity, and rational depth that modernism demands from a theory of behavior. In practical terms, this limits TPB's utility in policy design, economic modeling, and innovation planning—domains that rely on predictability, generalizability, and structural analysis.

The modernist critique therefore calls for a re-evaluation of behavioral theory in entrepreneurship and beyond. Future models must better integrate rational structure, systemic context, and universal logic, ensuring they reflect the complexity and coherence that modernism rightly expects from scientific inquiry into human behavior.

6. Conclusion and Future Research

A critique of the theory of planned behavior (TPB) from the perspective of modernist philosophy and looking at the critical aspects of the theory of planned behavior using/analyzing empirically the data from global entrepreneurship monitor (GEM) is proposed in this paper. The TBP stands in contrast to the traditional aspects and traditions. This paper looked into the philosophical foundations of the modernist philosophy – researchers looked at the virtue ethics concept given by Aristotle and the concept of rational cognition given by Kant. Further research was done to explore the empirical rigor emphasized by the social scientists of Vienna circle and also the theory of economic innovation by Schumpeter. Although TPB has been used in the research related to behavioral sciences along with entrepreneurship we found that it mainly shows and leans towards a postmodern inclination, which largely focuses on perceptions and attitudes based on subjectivity along with context.

Our empirical analysis reinforces this critique. TPB constructs such as attitude, subjective norms, and perceived behavioral control, although statistically significant, demonstrated limited and

inconsistent predictive power across different structural and cultural environments. In contrast, variables that reflect external systems—such as national innovation capacity, institutional support, and policy infrastructure—offered stronger and more stable explanations for entrepreneurial behavior (Liñán & Pérez-Macías, 2023). Through findings of this research the calling of recent scholars for finding behavioral models that reflect the complex nature all of the real-world systems is addressed (Tumasjan et al., 2022; Kattel & Mazzucato, 2022).

The research conducted has shown that it is time to review and rethink the basic premise off theory of planned behavior and its application in entrepreneurship. This paper suggests that future research should embrace structural, rationalist perspectives and essential realistic research which are the foundations of modernist thinking. The future models should try to research how a behavior in an organization is affected and sculpted by the institutional environment. Future research should focus more on how technological change and changing geopolitical economic structures affect the behaviors in an organization not merely subjective attitudes or beliefs of individuals.

This research shows, using emerging tools from the field of data science and artificial intelligence can further enhance the reorientation of this modernist philosophy. By using machine learning and other techniques such as causal inference models this research proposes that it will help in capturing the complexity of the behavior of this model in dynamic systems (Erevelles et al., 2022). The principles on which the bonus philosophy is based upon such as clarity of thought, rationality of argument, and objectivity, when used with these new technological tools will provide us with new theories that are more grounded and empirically powerful. Which basically means that when researchers use the latest technology in analysis it creates a more powerful argument for the philosophical theories and concepts.

In conclusion this research was it that amalgamation an infusion of modernist philosophy along with strong data end usage of latest technological and advanced tools for analysis shall provide a more promising path forward. This will allow for researchers to find new theories which are more applicable in the fast-changing world of business environment of today especially in the fields of entrepreneurship and organizational behavior. The human actions we see today in the organizations will be better explained by these theories

7. Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

8. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

9. Data availability

Data will be furnished upon request.

References

Ács, Z. J., Szerb, L., & Autio, E. (2023). Global Entrepreneurship Monitor: Policy Implications and Country Comparisons. *Small Business Economics*, *60*(1), 75–90. https://doi.org/10.1007/s11187-022-00614-z

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 11–39). Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Aristotle. (2009). *Nicomachean Ethics* (W. D. Ross, Trans.). Oxford University Press. (Original work c. 350 BCE)

Bosma, N., Kelley, D., & Herrington, M. (2022). *Global Entrepreneurship Monitor 2021/2022 Global Report*. GEM Consortium.

Bothello, J., & Snihur, Y. (2022). Reframing strategic entrepreneurship as a mode of inquiry: Schumpeter, systems, and the creative process. *Strategic Entrepreneurship Journal*, *16*(1), 3–19. https://doi.org/10.1002/sej.1412

Burr, V. (2003). *Social constructionism* (2nd ed.). Routledge.

Celenza, C. S. (2022). *The Italian Renaissance and the Origins of the Modern Humanities*. Cambridge University Press. https://doi.org/10.1017/9781108782102

Descartes, R. (1996). *Meditations on First Philosophy* (J. Cottingham, Trans.). Cambridge University Press. (Original work published 1641)

Erevelles, S., Fukawa, N., & Swayne, L. (2022). Big Data and AI in Behavioral Modeling: Advancing Theory With Algorithmic Insight. *Journal of Business Research*, *142*, 697–707. https://doi.org/10.1016/j.jbusres.2021.12.014

Gergen, K. J. (1991). *The saturated self: Dilemmas of identity in contemporary life*. Basic Books.

Guyer, P. (2022). *Reason and Experience in the Thought of Kant and Beyond*. Cambridge University Press. https://doi.org/10.1017/9781009057304

Habermas, J. (1987). *The philosophical discourse of modernity: Twelve lectures* (F. Lawrence, Trans.). MIT Press.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2022). *Advanced Issues in Partial Least Squares Structural Equation Modeling* (3rd ed.). SAGE Publications.

Hill, T. E. Jr. (2023). Moral Constructivism and the Categorical Imperative. *Ethics*, *133*(2), 259–281. https://doi.org/10.1086/722431

Kattel, R., & Mazzucato, M. (2022). Mission-oriented innovation policy and dynamic capabilities in the public sector. *Industrial and Corporate Change*, *31*(1), 15–27. https://doi.org/10.1093/icc/dtab043

Kelley, D. R. (2022). Renaissance Humanism and the Rise of Modern Science. *Journal of the History of Ideas*, *83*(2), 219–236. https://doi.org/10.1353/jhi.2022.0015

Lagerlund, H. (2022). Cartesian Consciousness and the Transparency of Mind: Historical and Contemporary Reflections. *Philosophy and Phenomenological Research*, *105*(2), 346–368. https://doi.org/10.1111/phpr.12823

Lakomski, G. (2022). Rethinking cognitive foundations: Post-Cartesian theories of knowledge and learning. *Educational Philosophy and Theory*, *54*(2), 125–135. https://doi.org/10.1080/00131857.2021.1888339

Liñán, F., & Pérez-Macías, N. A. (2023). Assessing the robustness of entrepreneurial intention models: A meta-analytic structural equation modeling approach. *International Entrepreneurship and Management Journal*, *19*(1), 109–131.

https://doi.org/10.1007/s11301-022-00260-6

Lucas, R. E. (2022). Industrialization and economic development: Historical insights and modern perspectives. *Journal of Economic History*, *82*(1), 1–28. https://doi.org/10.1017/S0022050722000044

Melé, D. (2022). Virtue Ethics in Business and Management: Reflections from Aristotle and MacIntyre. *Journal of Business Ethics*, *180*, 859–872. https://doi.org/10.1007/s10551-021-04917-4

Richter, N. F., Sinkovics, R. R., & Schlaegel, C. (2023). A critical review of PLS-SEM in international business research. *Journal of International Business Studies*, *54*(2), 299–318. https://doi.org/10.1057/s41267-022-00558-w

Sarstedt, M., Hair, J. F., Cheah, J. H., Becker, J. M., & Ringle, C. M. (2022). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal*, *30*(1), 11–24. https://doi.org/10.1016/j.ausmj.2021.12.004

Sison, A. J. G., & Fontrodona, J. (2023). The Common Good of the Firm and Human Flourishing: An Aristotelian View. *Business Ethics Quarterly*, *33*(1), 23–50. https://doi.org/10.1017/beq.2022.11

Toulmin, S. (1990). *Cosmopolis: The hidden agenda of modernity*. University of Chicago Press.

Tumasjan, A., Welpe, I. M., & Brinckmann, J. (2022). Entrepreneurship and the Theory of Planned Behavior: A Meta-Analytic Review. *Small Business Economics*, *59*, 59–83. https://doi.org/10.1007/s11187-021-00579-w

Uebel, T. (2022). Logical positivism and the demarcation problem: A reappraisal. *Studies in History and Philosophy of Science*, *91*, 220–230.

Uusikylä, P., & Valovirta, V. (2022). Systems thinking in public policy: Theory and practice in strategic foresight. *Policy Studies*, *43*(5), 857–874. https://doi.org/10.1080/01442872.2021.1935957

Yıldırım, N., Gürbüz, F., & Akgündüz, Y. (2023). The mediating role of entrepreneurial self-efficacy in the relationship between creativity and entrepreneurial intention. *International Journal of Entrepreneurial Behavior & Research*, *29*(2), 475–494. https://doi.org/10.1108/IJEBR-04-2022-0341