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The Impact of Public Policy on Perceived Environmental Uncertainty of Green Entrepreneurs in developing countries: Evidence from Algeria

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ABSTRACT

Amid current geopolitical, health, and environmental crises, uncertainty has gained increasing prominence to become the norm in the business world. In the Green Entrepreneurship (GE) field and due to its early stages, uncertainty is supposed to be higher which calls, especially in the context of developing countries, for the return of the notion of Knightian Uncertainty. This paper aims to capture the uncertainty perceived by Green Entrepreneurs (GEs) caused by Public Policy (PP) as an important component of the Business environment. Based on the three dimensions of uncertainty, in interaction with Public Policy, and throughout the Green Entrepreneurship Process (GEP), a model capturing the Perceived Environmental Uncertainty (PEU) is proposed, transformed into a questionnaire, and distributed to 168 GEs. The context of Algeria is selected due to its environmental characteristics which are suitable with a high level of uncertainty. Results show that Public Policy's nature and relevance impact the PEU of GEs. The PEU is more clearly manifested in the epistemology dimension in which there is a dysfunction in Green Markets Data and Statistics. Furthermore, the results show that there are specific challenges and particular characteristics of GEs, compared to the conventional ones, which make uncertainty higher in their context. Our findings contribute to effectuation theory by extending its theoretical boundaries to GE specificities and the institutional context of developing countries.

1. Introduction

It is not new to postulate that uncertainty constitutes a fundamental concept in entrepreneurship and organization literature (Milliken, 1987; Rapp & Olbrich, 2020). It is even considered a cornerstone of many entrepreneurship theories (McMullen & Shepherd, 2006; Julien & St-Pierre, 2014). This is the case with the Effectuation Theory which requires the uncertainty to be efficient (Sarasvathy, 2008). In addition to its academic standing, the uncertainty impact on the business environment is becoming increasingly obvious due to the sequence of unpredictable events and crises such as the healthy, financial, and geopolitical crises (Bridge, 2021). This is what hastened the resurgence of the notion of *Knightian uncertainty* in which, due to the absence of data, the calculation of the future is not possible (Knight, 1921). During all crises cited above, the voices calling for a green shift have become heard (Shulla, and al., 2021). Several reports from different international organizations, including the UN, have illustrated the importance of the Green Economy in the age of covid-19. Despite the promising future of GE, entrepreneurs are not immune to uncertainty. On the contrary, they have to face a high level of uncertainty "Knightian Uncertainty" since the Green Economy is, not only weakly defined, in its early stage (Boisvert & Foyer, 2015).

To fill this gap, entrepreneurship research is more and more interested in the context of entrepreneurial action under uncertainty (Bylund & McCaffrey, 2017). This stream of research is interested in what is called "Environmental Uncertainty" (Milliken, 1987). Added to intentions and motivations, skills, convictions, opportunity, knowledge, and success factors, research in GE is increasingly interested in its context and in the uncertainty that comes with it.

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However, the perception of this uncertainty "Perceived Environmental Uncertainty (PEU)" is not necessarily shared among all entrepreneurs (Julien & St-Pierre, 2014). There are several factors, internal and external, that can influence the perception of the environment. In the Entrepreneurship literature, we can find research about personal characteristics (Frese & Gielnik, 2023), self-efficacy (Zayadin, and all, 2022), and knowledge and experience (Shepherd & Patzelt, 2021) as internal factors. Likewise, There is research about external factors: impact of institutions (Bylund & McCaffrey, 2017), institutional context, and new institutional theory (Welter & Smallbone, 2011; Tracey & Phillips, 2011; Frølund, 2021; D'Andrea, 2022), and political conditions (Ahmed, Eramudugoda, & Riyami, 2023). Then, it seems clear that one of the important components of environmental uncertainty, as an external factor, is Public Policy (PP) in which high expectations are pinned on to promote entrepreneurship post-Covid19 and create a favorable entrepreneurship ecosystem (Ratten, 2021).

Therefore, this study will focus on the impact of PP on the PEU. In other words, the objective of this paper is to capture the perception of GEs of Environmental Uncertainty on its political side. For this, the context of developing countries seems to be more interesting because uncertainty is more important (Ahir, Bloom, & Furceri, 2023). Studying the GE and PEU, in the context of developing countries, will be more efficient for several reasons: they are (1) engaged, or at least concerned, in SDGs 2030 with social priority, (2) impacted by healthy and military current crises, and (3) characterized by a high political change. The context of Algeria seems to be the appropriate context to link GE to PEU because (1) there was a recent political movement in which the World Uncertainty Index for Algeria, extracted from the Fred Economic Data on the third of November 2022, shows that all-time high in the second quarter in 2019. (2) There is a political orientation towards entrepreneurship (new ministry for startups, new entrepreneurship legislation…) and also engagement in SDGs 2030 with great potential in renewable energies.

To measure this PEU, this study is based on the model of the GEP suggested by (Belz & Binder, 2017). GEs are distributed among five steps of the process and interact differently with PP. The argument for choosing a process approach is linked to the fact that GE is in its early stage and there is no consensus definition of the concept (O'Neill & Gibbs, 2016). Moreover, considering entrepreneurship as a process allows both bypassing the lack of definition and identifying GEs through their position in the GEP (Frese & Gielnik, 2023). Moreover, the capture of uncertainty, in this study, is based on the three dimensions of uncertainty of (Silberzahn, 2021) that are: ontological, epistemological, and social dimensions. These dimensions are in harmony with the celebrated types of uncertainty developed by (Milliken, 1987) in which the author clarified that the only type of uncertainty which can be under the label of perceived uncertainty is *state uncertainty*. Stemming from the above, the research question of this study is: *Is there an impact of PP on the PEU of GEs?*

To empirically validate our theoretical arguments, we analyze survey data of 168 Entrepreneurs from different green sectors. Fifteen (15) questions were distributed through the three dimensions of uncertainty. It concerns consecutively the following variables: (1) Policy existence, clarity, stability, and importance, (2) Data availability, reliability, relevance, and effectiveness, and (3) the Government responsibility, Evaluation of the Business Environment, and the impact on the decision-making process.

The results suggest that the PEU of GEs is influenced by Entrepreneurship and Green PP. The impact is manifested through the ontological dimension (perception of political instability, ambiguity, and instability), and epistemological dimension (inaccessibility, untrustworthy, and irrelevance data). It is also manifested through the social dimension in which GEs admit the impact of PP on their decision to invest.

To develop all these arguments, the article is outlined as follows: we give a literature review about the PEU in the green era, the moderated role of Public Policy on GE uncertainty, the context of developing countries, and the effectuation theory, and we explore existing literature about measuring uncertainty. We explain the methodology adopted and then we discuss the obtained results. We finish with the implications, limitations, perspectives, and conclusions of this study. Our research finding highlights the importance of uncertainty in entrepreneurship theory and particularly in the GE context. We consider this study as an introductory study to the applicability of effectuation theory in both developing countries contexts and in the GE field.

2. Theoretical Framework

2.1. Perceived Environmental Uncertainty (PEU) in the green age: Reemergence of Knightian Uncertainty

In the Cambridge dictionary, uncertainty is defined as *the state of being not sure or not able to decide about something*. From this semantic definition, we can already extract two principal dimensions of uncertainty: the decision-making dimension and the information dimension. Not far away, in entrepreneurship theory, uncertainty is defined as an objective lack of information (Silberzahn, 2021). Subsequently, information and uncertainty are interconnected

concepts (Abu-Rahma & Jaleel, 2019). In another hand, uncertainty can have internal and external sources (Magnani & Zucchella, 2018). Thus, adding the label "*environmen*t" to uncertainty refers to an external source of this uncertainty (Milliken, 1987). Then, Environmental Uncertainty is linked to the gap between the information needed and the information available in a complex and dynamic environment (Duncan, 1972). Moreover, adding the label "*Perceived*" to Environmental Uncertainty is to avoid the confusion between describing an objective state of the world and capturing the state of a person who perceives himself to be lacking critical information about the environment. Then, *Perceived Environmental Uncertainty (PEU)* can be defined as an individual's perceived inability to predict something accurately (Milliken, 1987).

Even though it is not a new concept, uncertainty is still considered undertheorized and elusive (Rapp & Olbrich, 2020). in entrepreneurship decision-making literature, a lot of effort has been made to understand the information characteristics and its impact on making-decision under uncertainty. According to (Julien & St-Pierre, 2014) it is not only about providing and transforming information, but it concerns the complex process of obtaining and treating ambiguous information. Literature shows that to understand uncertainty, it is not enough to focus on the information itself as an independent variable. The making-decision process is complex and linked to several factors as personality traits and cognitive skills, and ill-structuredness (Rapp & Olbrich, 2020). According to (Zayadin, and all, 2022) there is a dynamic relationship between the individual characteristics of entrepreneurs and the context in which they act.

In the entrepreneurship context literature, studying GE is highly requested due to the early stage of the Green Economy (Boisvert & Foyer, 2015). Difficulties in defining Green Economy and entrepreneurship are, logically, mirrored in, not only the definition of GE (O'Neill & Gibbs, 2016), but also in the identification of green sectors and consequently in its institutional framework (Bylund & McCaffrey, 2017). Furthermore, the current and unpredictable crises (Covid-19, Russia-Ukraine war) come to confirm the important dimension of the information and the high degree of uncertainty that becomes the norm in business (Bridge, 2021). In these circumstances, the notion of Knightian Uncertainty is naturally returned as the basis of entrepreneurship context literature. As a reminder and according to its creator, Knightian uncertainty is a situation in which the calculation of the future is not possible due to the absence of Data (Knight, 1921).

2.2. Green and Entrepreneurship Public Policy and Uncertainty: a mitigated or an aggravated role?

As discussed above, uncertainty has internal and external sources. Literature in PEU provides many sources of uncertainty as the age of the business, the size of the company, competitive pressure, the economic situation of the company, features of the industrial market structure, and the industry itself. According to (Milliken, 1987), uncertainty should be studied with specific components of the environment: suppliers, competitors, government, distributors, consumers, etc. Then, Government or Public Policy, as an external factor, is considered the main source of uncertainty. Uncertainty and Entrepreneurship literature have used many approaches to address more accurately the relationship between uncertainty and Public Policy. From an institutional perspective (Bylund & McCaffrey, 2017) emphasize the role of institutions and presume the existence of a reciprocal relationship between institutions and uncertainty. In other words, institutions influence uncertainty and uncertainty can also influence institutions. In certain conditions, entrepreneurs can impact and build institutions rather than just be reactive. For this, (Frølund, 2021) develops a model offering a coherent description of the way institutions affect uncertainty and the entrepreneurial process. PEU seems to boost pro-entrepreneurial social and cultural norms.

Specificities of Emerging and Green Markets

Naturally, reducing uncertainty is the main objective of PP. In emerging and green markets, the uncertainty is predominant due to the underdeveloped institutional setup, a lack of protection for legal and intellectual property rights, underdeveloped factors markets, and high transaction costs. The institutional environment, through its characteristics: Quality, Stability, and Alignment has a direct impact on the emergence of uncertainty and then, on the propensity to take action by entrepreneurs (D'Andrea, 2022). Three strategies are identified: institutional brokering, spanning institutional voids, and bridging institutional distance (Tracey & Phillips, 2011).

In developing countries, uncertainty coming from Government is increasingly important and policy-makers make the news instead of the traditional and financial crisis, especially in presidential elections, economic, health, and war crises (Ahir, Bloom, & Furceri, 2023). According to (Andrey, 2020), institutions can generate not only "certainty", but also "uncertainty". On another side, (Welter & Smallbone, 2011) highlights the importance of using the neo-institutional theory. They have developed a typology of possible institutional strategies available to entrepreneurs. Finally, and generally, there are two ways to deal with uncertainty: reduce it by forecasting and analysis or live it to benefit from exploration and effectuation (Bridge, 2021).

2.3. Public Policy in emerging countries: PEU at the Hearth of Effectuation Theory

To understand the effect of PP on entrepreneurship, several theoretical approaches have been mobilized as the Institutional theory, neo-institutional theory, contingency theory, stakeholder's theory, and Resources-Based View theory. What is common between these approaches is the postulate of planning as the default philosophy for business while GEs find it difficult to plan in a context of a high level of uncertainty (Bridge, 2021). So, in a context of uncertainty, entrepreneurship scholars advocate abandoning the planning-based approach and ask to confront this uncertainty through exploration, and effectuation (Bridge, 2021). Indeed, the choice between adaptive or predictive strategies is best left to the actual decision-maker (Packard & Clark, 2020; Rapp & Olbrich, 2020). The future can be seen as a combination of continuity and change. The use of effectuation logic enables entrepreneurs to benefit from uncertain markets (Taghvaee & Talebi, 2022).

In the Entrepreneurship literature, scholars identify uncertainty as a determinant of trad-off between adaptive or predictive logic. Furthermore, in the condition of Knightian uncertainty of green markets, the increasing importance of effectuation theory is associated with a higher level of uncertainty (Sarasvathy, 2008). Then and not surprisingly, Saras Sarasvathy, the founder of the effectuation theory, is the recipient of the 2022 Global Award for Entrepreneurship Research and the effectuation started reaping awards and recognition from the academic as well as from the business community. Concerning its contents, the Effectuation theory is based on five principles: One Bird, lemonade, crazy crash, affordable cost, and pilot on the plane (Sarasvathy, 2008). Effectuation is an action theory. It shed light on the logic of causation and the logic of effectuation as simultaneously used by entrepreneurs. Then, in high uncertainty or Knightian Uncertainty, effectuation is represented as the better one for entrepreneurs (Frese & Gielnik, 2023). Effectuation theory becomes more important and needs more studies in the context of developing countries which are characterized by socioeconomic and environmental vulnerability.

2.4. Measuring PEU: Approach by the three dimensions of uncertainty

One of the important and controversial issues around uncertainty is the question of measuring or capturing the uncertainty perceived by entrepreneurs. According to (Lorenzi, Sims, & Slocum, 1981), the measurement of PEU is not a new topic. It returns to the research of Thompson (1967), Starbuck (1976), Ford and Slocum (1977), and Bourgeois (1980). Whereas, these works were done as part of the organization theory in which uncertainty was defined as events that the organization cannot forecast (Gerloff, Muir, & Bodensteiner, 1991). At that time, there was no clear distinction between entrepreneurs, administrators, and Managers. However, the difference between countries and industries is taken into consideration in the renowned work of (Miller, 1993) in which a PEU measurement instrument has been developed to support the relevance of country-level assessments of political, policy, and macroeconomic uncertainties. The importance of Miller's scale has prompted authors to use it in different contexts. For example, a study about Arab countries has suggested several changes to Miller's scale to be applicable in Arab countries. This study proposes four factors to the structure of the scale: product, competition, government and policy, and economy (Elbanna & Gherib, 2012). Another renowned instrument to investigate PEU is the Duncan Scale (Duncan, 1972) in which two dimensions are identified: the simple-complex dimension on the perception of uncertainty and the complexity and dynamics of the organization's environment. The same scale had been completed by (Gerloff, Muir, & Bodensteiner, 1991) in which they proposed an instrument that measures project manager performance corresponding to Milliken's (1987) types of uncertainty (state, effect, and response uncertainty). Another scale but from a marketing perspective is proposed by (Dev & Brown, 1995) in which a multi-item measurement is done with six critical environmental components: supply, competitive, demand, financial/capital, and regulatory environment. Although it is multidimensional, the model proposed by (Fayolle, Barbosa, & Kickul, 2008) is also based on the risk and the planning approach.

Indeed, what is shared among these scales is the context in which there is the possibility to calculate or predict the future. But in the context of Knightian uncertainty, there is no place for the planning option. By criticizing the traditional view of considering the perceived uncertainty measures are substitutable for true environmental uncertainty, (Angus, Packard, & Clark, 2022) distinguish environmental (objective) unpredictability from entrepreneurs' subjective uncertainty. An entrepreneur can be highly certain despite excessive unpredictability and vice versa. Authors find, generally, that unpredictability, uncertainty, and their effects on entrepreneurial action are empirically distinct. Consequently, and in the context of Knightian uncertainty, it seems useful, to measure PEU, to come back to the original content of the uncertainty and its relationship with the environment. In this respect and for the sake of understanding uncertainty, we will address the issue of types and dimensions of uncertainty:

Types of Uncertainty and the Context of emerging countries

The classification of (Milliken, 1987) is still widely considered the reference typology on which it bases many studies. According to this study, there are three types of PU: State, Effect, and Response Uncertainty that explain Environmental Uncertainty. (1) *State Uncertainty or Perceived Environmental uncertainty*: it is the only one which can be under the label of PEU because the uncertainty is not experienced and is based on the perception of the entrepreneur. (2) *Effect Uncertainty* in which the event has happened but its effect is unknown in timing, severity, and nature. It is a lack of understanding of the cause-effect relationship. (3) *Response uncertainty* is about understanding what response options are available and what the value of each might be. The difference between these three types can be the type of information that the entrepreneur perceives to be lacking. (Milliken, 1987) argues that one of the reasons for not specifying one of the components of the environment by its name "for example suppliers' uncertainty", is because one component might impact others. For example: if there is a change in a low, we don't not only the impact of this low but also, we don't know the reaction of suppliers.

From another perspective, (McMullen & Shepherd, 2006) argue that every entrepreneurial activity requires knowledge and motivation. Then, what prevents entrepreneurs to act depends on the degree of uncertainty (knowledge) or is related to the ability to bear uncertainty (motivation). These two viewpoints are often considered opposites. But others reconcile these two currents because entrepreneurial activities require knowledge and motivation at the same time. In their paper (McMullen & Shepherd, 2006) argue that these two currents are not only complementary but their presence together is necessary to formulate a more representative model of the phenomenon known (degree of uncertainty) + stimulus (ability to tolerate uncertainty). There with and given that measuring PEU in developing countries has some specificities, and the context is closer to the Knightian uncertainty which often acts as a barrier to entrepreneurship, it can also provide important opportunities for entrepreneurs (Tracey & Phillips, 2011), it seems that delving into the content and dimensions of uncertainty will be imperative and may give new ways in PEU research.

Dimension of uncertainty in a Knightian uncertainty context

Uncertainty can be simplified into three basic questions that might be asked by any actors including entrepreneurs: (1) What is going on there? The objective is to recognize the existence of uncertainty and understand its nature. (2) How will it affect me? It means the consequences and the effect of uncertainty. (3) What am I going to do about it? It is about the response to uncertainty (Milliken, 1987). Hence and in the entrepreneurship literature, uncertainty is strongly linked to the judgments of entrepreneurs (Townsend, Hunt, Beal, & Jin, 2020). In addition, and from an entrepreneurial perspective, these three questions can be translated as that: 1- Is the external stimulus considered an opportunity for the potential entrepreneur? 2- Is the opportunity executable by the entrepreneur? 3- Does the success in exploiting it meet the entrepreneurs' needs?

In recent work, and not far from Milliken's simplification of uncertainty, (Silberzahn, 2021) proposes three dimensions of uncertainty in the context of Knightian Uncertainty:

- **The ontological dimension**: It concerns entrepreneurs' assimilation of the ecosystem regardless of their traits.
- **The cognitive dimension**: it concerns the nature of information available around the ecosystem in general and around the studies about green markets and how we can use it to plan and foresee the future.
- **The social dimension**: It concerns a social contextualization of the process of perception of uncertainty. The personality of the entrepreneur influences his decision to invest.

Finally, and as a conclusion of the literature review, we may deduce and construct a model of PEU of GEs caused by Public Policy in developing countries in which Knightian Uncertainty is more suitable to describe the context.

This model, detailed in the section of questionnaire structure below, is based on the three dimensions of uncertainty in interaction with Public Policy. Entrepreneurs, whatever their traits and whatever stage their project is, are impacted by Public Policy and then, they build their perception of the uncertainty caused by this Public Policy. The model proposed is built on the following hypothesis:

Ontology dimension (nature of PP)

The nature of Public Policy (stability and clarity) influences the perception of uncertainty. We take into consideration the possible difference that can exist between Entrepreneurship PP which is not new and common among all entrepreneurs, and Green PP which is relatively new. Then, this dimension is divided into two hypotheses:

H1*: GEs perceive uncertainty like entrepreneurship PP*

H2*: GEs perceive uncertainty like Green PP*

Epistemology dimension (PP Relevance)

By going deep and having a general vision of PP. Entrepreneurs have to deal with the institutional and the Market reality. In this regard, the crucial role of data is emphasized. The availability, reliability, and relevance of data and statistics play a central role in the consolidation of uncertainty perception. The effectiveness of the mechanism's support is also part of this perception.

H3*: Data and statistics on green markets are unfavorable for business creation*
H4*: Green supportive mechanisms are not effective*

Social dimension (PP impact)

As a result of this perception, entrepreneurs respond to this uncertainty. Firstly, it is important to link between this perceived uncertainty and the impact of this perception on the decision to invest. It is also important to capture the general appreciation of the Business Environment and the responsibility of the Government for it.

H5*: PP is impactful for GE's decision to invest*
H6*: Government is responsible for creating an enabling Green Business Environment*
H7: *The Green Business Environment is not well-defined and unfavorable for investment*

3. Prepare Your Paper before Styling

3.1. Research context

The current global crises have supported the premise that considering uncertainty the norm in business and, especially in entrepreneurship (Bridge, 2021; Silberzahn, 2021). This uncertainty is accentuated when it comes to the context of developing countries and green markets (Tracey & Phillips, 2011).

Therefore, the Algerian context is selected for its characteristics that seem to be corresponding with a Knightian uncertainty (Sedkaoui, 2019). Furthermore, the World Uncertainty Index for Algeria achieved a record in 2019-2020 which coincides with the political change and health crisis that the country experienced (Ahir, Bloom, & Furceri, 2023). Furthermore, Algeria, as an engaged country on SDGs, has established a set of policies to promote both entrepreneurship and sustainable development and progressing well to achieve Agenda 2030 as indicated in the Algerian voluntary report of 2019. The result is also, there in the entrepreneurship ecosystem: with 2187 events, Algeria ranks first place of the Global Entrepreneurship Network in November 2022. Furthermore, it is noticeable the move towards entrepreneurship and sustainability through many new Ministries (Creation of the Ministry of Knowledge Economy and Startups, Ministry of Energy Transition and Renewable Energies) generated dynamism in the Algerian Ecosystem and created green jobs, especially in the sectors of renewable energy and Waste treatment and recycling. Furthermore, Public Policy has also an impact on the academic entrepreneurial ecosystems (Chohra, 2019). But, the instability of these ministries and consequently, the politics and support mechanisms that go with them make the field of GE research a promising one. This study breaks into an unexploited subfield of entrepreneurship and sheds light on the context and the challenge faced by this specific nature of entrepreneurship.

3.2. Research Design

As a reminder, this study focuses on the measurement of uncertainty from the viewpoint of those who experience uncertainty and not from those who create it (Aktouf, 1987). In other words, the objective here is to capture the presence of uncertainty in the perception of entrepreneurs (from a micro level) and not measure this uncertainty from a macroeconomic level.

Therefore, the questionnaire is built with the background of the three main questions which form the three dimensions of uncertainty: What is going on? How does this situation influence? What can I do about this? (McMullen & Shepherd, Entrepreneurial Action And The Role Of Uncertainty In The Theory Of The Entrepreneur, 2006). This is specified in the three dimensions of uncertainty proposed by (Silberzahn, 2021):

- **Ontology dimension**: It concerns the entrepreneur's assimilation of the ecosystem regardless of personal traits.
- **Epistemology dimension**: concerns the nature of information available around the ecosystem in general and around green markets and how we can use it to plan and foresee the future.
- **Social dimension**: It concerns a social contextualization of the process of perception of uncertainty. The personality of the entrepreneur influences his decision to invest.

Taking into consideration the difference that may exist between Entrepreneurship Public Policy and Green Public Policy in the perception of GEs, the ontological dimension is separated into those two classes.

Additionally, these three dimensions correspond consequently with the nature, relevance, and impact of Public Policy. As such, the questionnaire contains fifteen questions that are regrouped and focused around:

- Nature of the Entrepreneurship Public Policy
- Nature of the Green Public Policy
- Nature of Data and statistics concerning Green Sectors
- Effectiveness of Green Supportive Mechanisms
- Impact and Role of Government on Green Business Environment

- General Assessment of the Green Business Environment

In the following table, the three dimensions of uncertainties, in interaction with Public Policy, are detailed on variables representing the content of every dimension and serving to capture the uncertainty perceived:

Table 1: moderating variables between Uncertainty and Public Policy

Public Policy	***Uncertainty Dimensions***	***Variables***	***Description***
Nature of Public Policy	*Ontological Dimension*	Policy Existence	Entrepreneurs must, at least, be aware that there are public policies concerning entrepreneurship and/or sustainable development.
		Policy Clarity	Public Policy must be without ambiguity for the entrepreneur.
		Policy Stability	Public Policy must have sufficient regularity for entrepreneurs' decision-making.
Public Policy Relevance	*Epistemological Dimension*	Data Availability	There are Data and statistics concerning Business activities in general and Green Sectors in particular.
		Data Reliability	The source of this Data must be trustworthy in that entrepreneurs can count on it and make decisions.
		Data Relevance	Data and statistics must be appropriate to the activity of the entrepreneur for effective decision-making.
		Mechanisms effectiveness	Entrepreneurs must perceive the Public Support Mechanisms as useful.
Public Policy Impact	*Social Dimension*	Public Policy Importance	Entrepreneurs perceive Public Policy as important to their business.
		Impact on decision	Entrepreneur takes into account Public Policy before starting an entrepreneurial activity.
		Government Responsibility	Entrepreneur considers that the Government is responsible for the creation of an appropriate Business Environment.
		Business Environment appreciation	Entrepreneur qualifies the Business Environment as in favor of investment.

3.3. Sample and Data Collection

The target of this study is the category of entrepreneurs that are interested in green businesses and active in green sectors. Unfortunately, this objective has faced the fact that there is, in Algeria, no classification of green sectors nor nomenclature of green jobs and consequently, no possibility to identify the sample size. Consequently, the study was done with a confidence level of 90% and with 6.38% as a margin of error.

The data was collected from GEs evenly distributed across the GEP (Belz & Binder, 2017) and dispersed from the 58 Algerian provinces. The sampling was obtained by directly targeting GEs on social media (LinkedIn and Facebook). We still managed to select 502 entrepreneurs from the database of the National Waste Agency (AND). The survey was conducted in two usual languages that can be used by entrepreneurs in Algeria: Arabic and French languages. The data collection is done for more than four months (16/09/22 to 02/02/23) and 168 responses are collected. The final version of the survey was preceded by conducting a pilot survey from 15 GEs (which represent almost 10% of the sample) and reviewed by four specialties (Ph.Ds. and Data analysts). From the 168 responses collected, we eliminate three responses in which their companies have more than 250 employees who are not considered Green SMEs.

3.4. Measures

As stated before, the fifteen questions are distributed over dimensions of uncertainty (Silberzahn, 2021). Evenly, five-point Likert scales, raking from (1) strongly disagree to (5) strongly agree, is used.

4. Data Analysis

After the step of collecting data, we used SPSS software in its 28th version to analyze and test hypotheses. Accordingly, the results were as follows:

4.1. Reliability and descriptive statistics

The internal consistency of the items in the questionnaire was assessed using Cronbach's alpha, which yielded a value of 6.13 this indicates that there is reliability, as a value above 0.6 is generally considered acceptable for social sciences research. Then, the items in the questionnaire were consistent and stable, and thus the results of the study are likely to be accurate and trustworthy.

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
0,613	19

4.2. Hypothesis testing with student's t-test

As mentioned earlier, the data was collected using a questionnaire. Additionally, as we previously referred to the use of the SPSS program in Data processing. In this section, we will show the results obtained in testing the seven hypotheses of this study, using the Student's test. The results of the test are shown in the following table:

Table 3: Significance and t-test of hypothesis

	t	Significance One-Sided p
Entrepreneurship PP Uncertainty	-1,503	0,067366503525097300
Green PP Uncertainty	5,993	0,000000006344423608
Unfavorable Data	9,689	0,000000000000000004
Support entities' effectiveness perception	7,207	0,000000000009922970
PP impactful	9,015	0,000000000000000247
Government Responsibility perception	8,369	0,000000000000012167
Clear and favorable business environment	5,563	0,000000052889563214

Results show that:

- Except for the first hypothesis concerning Entrepreneurship Policy, the P-value is less than 0.05 in the rest of the hypotheses. It indicates that there is a statistically significant.
- Given that (P=0.067…) and t-student has a negative value (t=-1.503), the first hypothesis is rejected. In other words, GEs do not consider themselves in an uncertain situation concerning Entrepreneurship Policy.
- In the second hypothesis, the P-value less than 0.05 and the t-student is positive (t=5.993) is confirmed. GEs consider themselves in an uncertain situation linked to Green PP.
- As to the epistemology dimension, the third hypothesis shows that there is strong evidence of the unfavorable Data of the Green Business environment since the P-value is less than 0.05 and the t-student is positive (t=9.689). the fourth hypothesis is also accepted (P-value less than 0.05 and t=7.207). GEs consider the support entities ineffective.
- The social dimension which includes three hypotheses is also established. GEs are strongly impacted by Public Policy (Hypothesis 5: P-value less than 0.05 and t-student (t=9.015)). Correspondingly, Green Entrepreneurs consider that the Government is responsible to build a favorable Business environment (Hypothesis 6: P-value less than 0.05 and t-student (t=8.369)). Finally, hypothesis 7 is accepted (P-value less than 0.05 and t-student (t=5.563)) because GEs consider the Current Business Environment unclear and unfavorable to invest in.

5. Discussion

From the result shown above, it appears that Public Policy Impacts GE's perception of environmental uncertainty. Nevertheless, and while decorticating this uncertainty in its three dimensions, we observe differences between these dimensions especially for the first one in which results show a difference between Green Public Policy and Entrepreneurship Public Policy. As such, a specific discussion of every dimension is needed to analyze and understand the critical points of this uncertainty.

The ontology dimension of uncertainty is composed of two hypotheses; the first one is rejected and the second one is accepted. This implies that, concerning the first hypothesis, GEs do not perceive uncertainty like Entrepreneurship Public Policy. They have become, as the conventional ones, familiar with these policies from the time when Entrepreneurship and SME legislation is not new. Since its appearance in 1995, SME legislation has been significant and continuous improvements in terms of quantity and quantity. Consequently, entrepreneurs have developed awareness and accumulated experiences about the effective trajectory to be followed to create and develop businesses. As such, GEs consider that PP

exists, and has an acceptable level of clarity and stability, which reduce the level of uncertainty related to the nature of these policies. On the other hand, a state of uncertainty was detected among GES concerning green public policies. This case reflects the early stage of the green economy and the ill-structured state of GE in Algeria, which does not allow, institutionally, GEs to stand on solid ground during their process of creating and developing projects. Additionally, this "green uncertainty" shows a lack of exceptional public care for the green economy and, then, the inexistence of specific privileges dedicated by the government to GEs. This goes against what appears to be a governmental orientation toward sustainable development. in other words, the government does not pay special attention, at least from a legislative side, to GE's concerns. In conclusion, the ontology dimension, the specific concerns, and the challenges faced by GEs compared to conventional ones are confirmed. This is to the existing GE literature that emphasized the specific challenges and characteristics of GEs (O'Neill & Gibbs, 2016). Additionally, and from an institutional perspective, despite the optimistic public reports which indicated the right path and the positive progress toward achieving the 2030 Agenda linked to the Sustainable Development Goals SDGs, the early stage of Green Policy and then Green Economy is identified as the indicated in the literature.

Concerning the cognitive dimension, its hypotheses are related to data and statistics on GE, as well as government mechanisms aimed at developing entrepreneurship in general and GE in particular. These mechanisms are supposed to be structured in the form of organizations which is its primary role is related to accompanying and facilitating the launch of projects and creating a green entrepreneurial environment suitable for the promotion of GE. The results came in the same direction as the literature, especially about the vital role of data and statistics (Julien & St-Pierre, 2012). GEs encountered difficulties, not only in obtaining Data but also linked to the degree of its reliability and effectiveness in answering their concerns about green sectors and competitive market conditions. Such as and from these results, it seemed clear that the presence of Public Policy and the existence, on paper, of support organizations are not sufficient to promote GE. Entrepreneurs need efficient Data that the research market can be based on to help in their decision-making processes. The source of this data must principally be governmental, as long as the figures are owned by government agencies. Furthermore, the development of Private firms specialized in statistics, which are concerned with conducting market studies, is also dependent structurally on Public Authorities and economic circumstances. With an informal economy of approximately 30 % (World Bank, 2021), the problem becomes more complicated than it seems and may exceed the immediate capabilities of the government. This fact makes resolving the dilemma of availability, reliability, and effectiveness of data, at least in the short and medium term, elusive. On the other hand, concerning the effectiveness of government agencies, it seems that they have intensified the uncertainty perceived by GEs through their ineffectiveness. These organizations become, in the absence of effectiveness, a new barrier to the Entrepreneurs with complex administrative procedures and through the long period of response and lack of flexibility to take into account the entrepreneurs' concerns. In short, the cognitive dimension can be summarized in two main points: the importance of data and statistics, and bureaucratic obstacles issued by support agencies. Hence and in contrast to the first dimension, in which the state of uncertainty did not achieve a clear form, this dimension captures a high uncertainty in the cognitive aspect, and GEs attach great importance to it. The existence of policies, in theory, is not sufficient. It requires mechanisms that would answer the practical concerns of entrepreneurs and fixe, as an objective, the technical and market aspect instead of spending effort on administrative and event aspects.

The last dimension is the social one. The Social dimension is related somehow to entrepreneurs' reactions, judgments, and decisions that they can make about the green business environment. This dimension was divided into three main variables related to the importance of public policies in the perception of GEs, as well as their general assessment of the current green investment environment in Algeria and the government's responsibility in that. The results also came, confirming what the literature proved about the great influence and place that public policies have on the perception of entrepreneurs and the extent to which their hopes and attention are attached to public policy as a determinant indicator for them (Bylund & McCaffrey, 2017). Their negative assessment of the current business environment, their holding the government accountable, their recognition of the importance of government policies, and their impact on their decisions are evidence that this last dimension, like the second dimension, are two dimensions that are highly realized and constitute the most important dimension in the PEU.

In conclusion, the results indicate an effectual orientation of the GEs through their focus, expressing the state of uncertainty in which they are, on the practical aspect of their business. In other words, Green Entrepreneurs place more importance on the practical or effectual aspect of uncertainty that is linked cognitive side (data and statistics) instead of the planning side linked to the nature of Public Policy (Andriany, 2023).

6. Implications

This study links the individual level to the institutional context. Such as, results may imply entrepreneurs as they may imply Public Institutions. Therefore, Policy makers can use the result of this study for more insights from the side of users and receivers of this Public Policy instead of the classic macro level side. Public Policymakers must take into account the viewpoint of entrepreneurs and answer their real concerns and remove the bureaucratic and environmental barriers especially because GEs put the responsibility of a favorable business environment on the Government and emphasize the

importance of Government in their orientation towards Green Markets. On the other side, GEs can also benefit from this study to understand the importance of the effectual approach and revise the classic one linked to the plan. Entrepreneurs should be proactive in front of institutional barriers and seek to mitigate uncertainty to find solutions in the short term.

From an academic side, this study may have added value to the GE, Public Policy, and uncertainty literature. It can be also considered as an extension of the effectuation theory to GE in an institutional context (Andrey, 2020), and the effectuation orientation of entrepreneurs (Taghvaee & Talebi, 2022). It participates also in the debate of using the effectual approach or a predictive planning approach to mitigate and adapt to the context (Packard & Clark, 2020).

We contribute to effectuation theory by opening the way to other studies in a context of uncertainty and an institutional perspective of GE orientation in developing countries.

7. Limitations and future research

As with every research, there are some limits due to the circumstances of conducting the study. We consider the major limitations of this study to be linked to the early stage of the GE literature in a side, in which there is no consensus around the definition of GEs, for this, we have based our study on the GEP of (Belz & Binder, 2017). On the practical side, the absence of nomenclature of green jobs and green sectors in Algeria has obliged us to open the study to all sectors. It would be interesting to capture the PEU for every sector, at least the known ones, and for every step in the GEP. Maybe some sectors are more mature than others and so, the appreciation and the perception of uncertainty might be different. Some sectors are more favored by Government. Also, the step is different, entrepreneurs who want to create uncertainty in the same sector might see the uncertainty differently. there are several sectors concerned with the green economy, logically we can find differences in the result, for example, the recycling industry in Algeria is advanced compared to sustainable tourism so the level of uncertainty can be different.

In addition, and on the methodology side, this study is based on the entrepreneurs' perception of uncertainty using a questionnaire while the basic study of effectuation theory is based on observation or experienced group that seems to be more suitable to evaluate behavior and the action of entrepreneurs (Sarasvathy, 2008).

To conclude, future research on this study might be linked to more detail in green economic sectors and GE steps, another model, and another methodology. It opens the field of studying effectuation principles in the context of developing countries in general and in Algeria.

This study has the privilege to break into new topics and open ways for future research, especially in effectuation theory in developing countries. In this direction, it is important, for future research, to take into consideration the experience of entrepreneurs because the effectuation theory is generally linked to the “expert entrepreneurs”.

8. Conclusion

In a world of unpredictable crises, uncertainty has become the norm in the Business Environment (Bridge, 2021). It is the base of the effectuation theory in which its founder Sarasvathy, in her last paper, has launched a call to embrace uncertainty where outcomes are unknowable. It is the case, especially in GE (Sarasvathy, 2023). By returning to the original notion and questioning the concept of Uncertainty, this paper argues that uncertainty is higher in Green Sectors and then, GE is impacted by this uncertainty in which one of the most important causes is PP. This study aimed to capture the perception of uncertainty by GEs from the three dimensions of uncertainty (Silberzahn, 2021). The context chosen is a context of developing countries in which there is political instability, and green and entrepreneurship orientation. This research is about the dynamic between individuals and the context. As a result, PP impact the PEU. There is uncertainty perceived by entrepreneurs in front of the environmental context on its political side. This uncertainty appears in the ontology dimension in which there is political instability and opacity on the green side. Uncertainty is higher in the epistemological dimension in which there is a lack of data reliability and data relevance as the effectiveness of mechanisms supports. Thirdly and in the social dimension, entrepreneurs consider the current Business Environment unfavorable to investment, and, the Government is responsible to find solutions to promote GE.

References

[1] Abu-Rahma, A., & Jaleel, B. (2019). Perceived uncertainty and use of environmental information in decision making: The case of the United Arab Emirates. International Journal of Organizational Analysis.

[2] Ahir, H., Bloom, N., & Furceri, D. (2023). The World Uncertainty Index. Cambridge: National Bureau of Economic Research.

[3] Ahmed, R., Eramudugoda, R., & Riyami, S. A. (2023). Entrepreneurs' Behaviors in Politically Unstable Countries: An Entrepreneurial Effectuation Theory Perspective. The International Journal of Interdisciplinary Organizational Studies, 18(2), 1-14.

[4] Andrey, K. (2020). Institutional uncertainty in transitional and developing economies. National Accounting Review, 66-82.

[5] Andriany, L. M. (2023). Combining Effectuation and Causation As Decision-Making Approaches Amidst Covid-19: Case of Micro-Business in Indonesia. Proceeding Medan International Conference Economics and Business. Medan, Sumatera Utara, Indonesia.

[6] Angus, R. W., Packard, M. D., & Clark, B. B. (2022). Distinguishing unpredictability from uncertainty in entrepreneurial action theory. Small Business Economics.

[7] Belz, F. M., & Binder, J. K. (2017). Sustainable Entrepreneurship: A Convergent Process Model. Business Strategy and the Environment, 26(1), 1-17.

[8] Boehnert, J. (2015, March 13). The Green Economy: Reconceptualizing the Natural Commons as Natural Capital. Environmental Communication, pp. 395-417.

[9] Boisvert, V., & Foyer, J. (2015, August 25). L'économie verte; Généalogie et mise à l'épreuve d'un concept technocratique. CNRS éditions, pp. 139-161.

[10] Bridge, S. (2021). Facing uncertainty: An entrepreneurial view of the future? Journal of Management & Organization, 312–323.

[11] Bylund, P. L., & McCaffrey, M. (2017). A theory of entrepreneurship and institutional uncertainty. Journal of Business Venturing, 461-475.

[12] Chohra, M. (2019). A critical Review of the Academic Entrepreneurial Ecosystem in developing countries: the case of Algeria. International Journal of Technology Management & Sustainable Development, 243-259.

[13] D'Andrea, F. A. (2022). Entrepreneurship and institutional uncertainty. Journal of Entrepreneurship and Public Policy.

[14] Dev, C. S., & Brown, J. R. (1995). MEASURING ENVIRONMENTAL UNCERTAINTY. The International Review of Retail, Distribution and Consumer Research, 5(2), 219-247.

[15] Dornan, M., Morgan, W., Cain, T. N., & Tarte, S. (2018, June 26). What's in a term? "Green growth" and the "blue- green economy" in the Pacific islands. Asia and the pacific policy studies, pp. 408-425.

[16] Duncan, R. B. (1972). Characteristics of Organizational Environments and Perceived Environmental Uncertainty. Administrative Science Quarterly, 17, 313-327.

[17] Elbanna, S., & Gherib, J. (2012). Miller's environmental uncertainty scale: an extension to the Arab. International Journal of Commerce and Management, 22(1), 7-25.

[18] Fayolle, A., Barbosa, S. D., & Kickul, J. (2008). Une nouvelle approche du risque en création d'entreprise. Revue française de gestion, 141-159.

[19] Frese, M., & Gielnik, M. M. (2023). The Psychology of Entrepreneurship: Action and Process. Annual Review of Organizational Psychology and Organizational Behavior, 137-164.

[20] Frølund, C. W. (2021). Institutions, uncertainty, and entrepreneurial judgment. Journal of Institutional Economics, 913-923.

[21] Gartner, W. B. (1988). Who is an entrepreneur? Is the wrong question. American Journal of Small Business, 12(4), 11-22.

[22] Gerloff, E. A., Muir, N. K., & Bodensteiner, W. D. (1991). Three Components of Perceived Environmental Uncertainty: An Exploratory Analysis of the Effects of Aggregation. Journal of Management, 17(4), 749-768.

[23] Julien, P.-A., & St-Pierre, J. (2012). Entrepreneur, incertitude et information : un essai d'application. 11ème CIFEPME. Brest, France.

[24] Julien, P.-A., & St-Pierre, J. (2014). Entrepreneurs et Incertitude: des profils variés. Dans G. lecointre, Le Grand Livre de l'Économie PME 2015. Gualino.

[25] Kasztelan, A. (2017, May). Green Growth, Green Economy and Sustainable Development: Terminological and Relational Discourse. Prague Economic Papers, pp. 487-499.

[26] Knight, F. (1921). Risk, Uncertainty and Profit. Boston and New York: Houghton Mifflin Company.

[27] Lorenzi, P., Sims, H. P., & Slocum, J. W. (1981). Perceived Environmental Uncertainty: An individual or Environmental attribute? Journal of Management, 7(2), 27-41.

[28] Magnani, G., & Zucchella, A. (2018). Uncertainty in Entrepreneurship and Management Studies: A Systematic Literature Review. International Journal of Business and Management, 13(3), 98-133.

[29] McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial Action And The Role Of Uncertainty In The Theory Of The Entrepreneur. Academy of Management Review, 132–152.

[30] Miller, K. D. (1993). Industry and Country Effects on Managers' Perceptions of Environmental Uncertainties. Journal of International Business Studies, 693-714.

[31] Miller, K. D. (1997). Measurement of Perceived Environmental Uncertainties: Response and Extension. Purdue CIBER Working.

[32] Milliken, F. J. (1987). Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty. Academy of Management Review, 12(1), 133-143.

[33] O'Neill, K., & Gibbs, D. (2016). Green Entrepreneurship - Fluid Narratives of the Green Economy. Environment and Planning A: Economy and Space, 48(9), 1727–1749.

[34] Packard, M. D., & Clark, B. B. (2020). Mitigating versus Managing Epistemic and Aleatory Uncertainty. Academy of Management Review, 45(4), 872-876.

[35] Packard, M. D., Clark, B. B., & Klein, P. G. (2017). Uncertainty Types and Transitions in the Entrepreneurial Process. Organization Science, 28(5), 840-856.

[36] Rapp, D. J., & Olbrich, M. (2020). On entrepreneurial decision logics under conditions of uncertainty: an attempt to advance the current debate. Journal of Innovation and Entrepreneurship.

[37] Ratten, V. (2021). Covid-19 and Public Policy and Entrepreneurship: Future Research Directions. Journal of Entrepreneurship and Public Policy, 10(3), 445-454.

[38] Robert Hine. (2019). A dictionary of Biology, 8th Edition. Oxford University Press.

[39] Santini, C. (2017, March 25). Ecopreneurship and Ecopreneurs: Limits, Trends and Characteristics. Sustainability. doi:10.3390/su9040492

[40] Sarasvathy, S. D. (2008). Effectuation: Elements of Entrepreneurial Expertise. Edward Elgar.

[41] Sarasvathy, S. D. (2023). Questions worth asking for futures worth making: an effectual approach. Small Business Economics.

[42] Schoettli, J. (2018, February 01). The blue economy 3.0: the marriage of science, innovation and entrepreneurship creates a new business model that transforms society. Journal of the Indian Ocean Region, pp. 123-124.

[43] Sedkaoui, S. (2019). An Empirical Analysis of the Algerian Entrepreneurship Ecosystem: Entrepreneurship Ecosystem in Algeria. Handbook of Research on Ethics, Entrepreneurship, and Governance in Higher Education.

[44] Shepherd, D. A., & Patzelt, H. (2021). Attending to the External Environment to Identify Potential Opportunities. Entrepreneurial Strategy, 1-25.

[45] Shulla, K., Voigt, B.-F., Cibian, S., Scandone, G., Martinez, E., Nelkovski, F., & Salehi, P. (2021). Effects of COVID-19 on the Sustainable Development Goals (SDGs). Discover Sustainability(15).

[46] Silberzahn, P. (2021). Bienvenue en incertitude ! - Survivre et prospérer dans un monde de surprise. Diateino.

[47] Taghvaee, S., & Talebi, K. (2022). Market orientation in uncertain environments: The enabling role of effectuation orientation in new product development. International School of Management, Germany.

[48] Tharindu, P. K., & Koggalage, R. (2020, August 31). Dynamics of Green Entrepreneurship Concept: A Review of Literature. Journal of Multidisciplinary Engineering Science and Technology, 12529-12533.

[49] Tracey, P., & Phillips, N. (2011). Entrepreneurship in Emerging Markets Strategies for New Venture Creation in Uncertain Institutional Contexts. Management International Review, 23-39.

[50] Welter, F., & Smallbone, D. (2011). Institutional Perspectives on Entrepreneurial Behavior in Challenging Environments. Journal of Small Business Management, 107-125.

[51] Zayadin, R., Zucchella, A., Anand, A., Jones, P., & Ameen, N. (2022). Entrepreneurs' Decisions in Perceived Environmental Uncertainty. British Journal of Management.