Publishing in High Impact Factor Journals
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By
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I dedicate this research work
To my father,
To whom I owe all the love of my life,
From whom I drew the will to move forward
And who infused me with courage and confidence.
In memory of my mother, God rest her soul.
To my brothers, to my sister
And all the members of my family
Who have never spared the slightest effort
With the aim of persevering.
To all my friends for their moral support,
And encouragement.
To all those who helped me
To finalise this work

LTIFI Moez, Ph.D
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"The reasonable man adapts to his environment, the man
unreasonable is constantly trying to adapt his environment to him.
Therefore, all progress depends on the unreasonable man".
George Bernard Shaw

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PART I:
THE THEORETICAL FOUNDATIONS
OF SCIENTIFIC RESEARCH

Introduction

Scientific publication is an essential aspect of technical, medical, social, economic and other progress. New advances in human knowledge in any field are communicated to the rest of the world through publications. Scientific research is universal, so it is essential that this communicated knowledge is accurate, valid, reproducible and practically useful.

Researchers and scientists of all nationalities and specialties dream of publishing their work in high impact journals. To make these dreams come true, it is essential to learn, follow and know the basic principles of research methodology and scientific publication.

Impact factor journals are the best journals in the world. They are the guardians of scientific advancements. For this reason these journals aim to publish the best research with valid conclusions and solid contributions that will stand up to scrutiny. To enhance their scientific positions, impact journals always seek to publish a product that has a positive impact on science and society.

Competition is always present even in the field of scientific research. Knowing something means being more competitive than others. Today, knowledge management has an important interest in this area.

Knowledge is one of the most important strategic resources for the researcher and is valuable and inimitable. Replacing existing knowledge, implicit or explicit, which may be erroneous or insufficient, requires the acquisition of new knowledge from internal and external sources. This knowledge is useful for solving problems and barriers to scientific publications.
Knowledge management involves the identification and valorisation of the collective knowledge of researchers. It is about getting the right knowledge to the right people at the right time and enabling researchers to share and implement information to improve their scientific positions and add to scientific research. However, the most valuable knowledge lies in the human brain.

Knowledge sharing and knowledge management are the strategic elements that enable researchers to develop a competitive advantage, to exchange scientific knowledge and experience with each other.

The objective of this book is to propose a reference framework and guidelines to help researchers produce a high quality scientific manuscript in order to meet the requirements of the impacted journals and succeed in their publications. The scientific quality, experience, writing capacity ... vary from one researcher to another. Even the most experienced scientists sometimes forget the requirements of scientific research as well as the requirements of the journals, which generally results in a lower level of their productions. In this text we will find a series of often quite precise guidelines, advice and tips, of course, a detailed description of the different steps to be taken to achieve a solid publication with a high impact factor.

The model presented here needs to be adapted, modified and worked on in order to serve its research objectives. It is intended to be a relatively clear and firm proposal, but one from which everyone must detach themselves. It must be applied critically and adapted to one's work. Indeed, the pursuit of a specific objective or the emergence of a particular knowledge generally requires its own methodological developments that depart from or even oppose the usual paths. That said, lack of rigour and the absence of a work plan usually do not lead to discovery.

This book is therefore not a methodological work in the usual sense. It does not include the panoply of variations in the multiple methods of data collection and analysis. It is neither a compendium of qualitative methods nor a manual of quantitative methods. It is more of a guide to help researchers publish their manuscripts in a high impact factor journal. Of
course, the specificity of the main research methods is necessarily addressed, but always with a view to facilitating the conduct of research. Therefore, detailed explanations of particular statistical tests and coding methods are not provided here. Many books already address these topics.

In this book and on the basis of my experiences and knowledge, I will present my own personal opinion on how to publish in a journal with a high impact factor. I would talk about how to carry out good research, how to design the preparation of the manuscript, how to respect the editorial policy of the journal, the likely results and the reasons for failure or success, etc. I would also talk about how to make a good research, how to prepare the manuscript, how to respect the editorial policy of the journal, the likely results and the reasons for failure or success, etc. I would provide the competitive weapons of publication in the form of advice, recommendations and explanations in order to achieve scientific success.

I/ Scientific research

Academic scientific research is based on the systematic use of specific methods and procedures to obtain information or to reveal relationships between variables in society. Scientific research aims to bring to light new information or to verify old information in order to increase or verify knowledge. Therefore, scientific research is based on the examination of hypotheses in order to understand or analyze a given phenomenon in society.

Scientific methodology is the backbone of all social science research that aims to produce knowledge or aspires to observe and understand behavior and social and political change. Scientific studies also play a fundamental role in government planning and institutional organization and can be an important source of information for the work of political parties, non-governmental organizations, trade unions and civil society in general. It is therefore important to adopt a scientific methodology in any research aimed at understanding society and developing policies, programs or projects to bring about development or positive change in societies.
Method: A method, i.e. formulating a question in this way: how does marketing proceed to study this object?

The method thus defined is made up of a set of rules which, within the framework of a given science, are relatively independent of the facts observed in the field. On this same field, at the time of its implementation, this method finds its expression in concrete procedures: during the preparation, then the organization and finally the conduct of the research.

Science: a body of knowledge and research having a sufficient degree of unity, and likely to lead the men who devote themselves to it to concordant conclusions which result neither from arbitrary conventions, nor from tastes or individual interests which are common to them, but from objective relations which are gradually discovered, and which are confirmed by defined methods of verification. (Lalande, 1988).

Every scientific discipline has an internal coherence that ensures the unity of scientific knowledge. This coherence excludes the existence of contradictions between the different statements that are formulated within the same discipline. To this internal unity is superimposed an overall unity between the various scientific disciplines. The homogeneity of the various scientific methods leads the various scientific disciplines towards a point of convergence.

Internal criticism guarantees the coherence of theoretical statements and external criticism confronts hypotheses and theories with objective data, with facts. The scientific approach is not satisfied with singular statements.

It aims at generality by identifying universal laws and statements that allow to link phenomena that, at first sight, may seem very distant. From these universal statements, the scientific method draws conclusions in the form of logical implications or deductions.

These conclusions are not bound by any convention, prejudice or arbitrariness. They are partial and provisional truths that can be questioned and refined by the progress of knowledge. These partial and relative truths are accepted only if they are confirmed by observation or experimentation using methods specific to each science.
Scientific research is an effort of the mind that aims at the knowledge of the world and the universe that surrounds us. To deserve the name of "scientific", this knowledge must be:

- communicable,
- reproducible,
- verifiable,
- generalizable.

*The scientific methodology* allows the implementation of theoretical and operational requirements of the observation; thus it confers to the results a legitimate foundation.

In short, scientific research is a dynamic process or a rational approach that allows to examine phenomena, problems to be solved, and to obtain precise answers from investigations. This process is characterized by the fact that it is systematic and rigorous and leads to the acquisition of new knowledge. The functions of research are to describe, explain, understand, control, and predict facts, phenomena and behaviors.

Scientific rigour is guided by the notion of objectivity, i.e. the researcher deals only with facts, within a framework defined by the scientific community.

**A/ Functions and objectives of scientific research:**

Scientific research can have six main functions or objectives:

- **Diagnosis:** Diagnosis is one of the most important functions of any scientific research because the characterization of the population under study and the diagnosis of the phenomenon on which the research focuses is the first, if not the most important, step in scientific research.

- **Exploration:** One of the functions of scientific research is also to seek information, explore facts and collect evidence and data.

- **Interpretation:** Based on diagnosis and exploration, interpretation is the third objective of scientific research. Identifying a phenomenon or pattern in society and seeking sufficient information to understand it leads the
researcher to provide an accurate interpretation or analysis of the phenomenon being studied.

- **Prediction:** Prediction or extrapolation is the target of many scientific studies that monitor the temporal evolution of social phenomena or those that study the relationships between different factors in society and the extent of their influence on each other. In these cases, scientific forecasting is based on the study of social patterns and strict observation of phenomena and behaviors in society.

- **Control:** Due to the nature of research work and its ability to detect social patterns as well as to predict on the basis of group data and information in an accurate scientific manner, control, mastery and planning become basic functions of scientific research.

- **Archiving:** Finally, the sixth function of scientific research is to create a database and archive of data from which other researchers can benefit.

**II/ Scientific knowledge**

Scientific knowledge is organized knowledge, subject to rules and methodological principles, which we cannot access without following and adhering to these principles. Therefore, we find that scientific knowledge differs in many cases from the analyses and ideas that prevail in society because research works strive to go deeper into the subject, to collect objective information and to analyze it outside preconceived ideas, narrow analyses and stereotypes.

Sociologist Anthony Giddens (2013: 38) describes the research process in sociology, as in other sciences, as "the art of the possible." This description is based on the realization that scientific knowledge is subject to moral barriers and conditions of direct access to information. Not all information is available to the researcher and not all research methods are possible and acceptable in terms of the ethics of scientific research. For example, if the researcher is interested in the reasons why some people commit suicide, the ideal would be to talk to people who would have committed suicide if it were possible. However, this is not possible because they are dead. So in this case, the researcher resorts to alternative
methods that can bring him/her as close as possible to the information, such as interviews with family members or survivors of the suicide, etc.

Scientists often say that they do not speak without foundation but are based on certain facts. By this they mean that the scientific knowledge they advance does not come out of thin air, but rather is built on existing theories and previous studies. Scientific studies select theories by gathering and analyzing data and evidence, and then reformulating theories based on the results of the analysis of new information and data.

In this way, knowledge is accumulated and science progresses. Some hypotheses are therefore excluded, while others are examined to ensure their ability to explain certain phenomena in society.

In this sense, scientific knowledge is knowledge based on society's interpretation that is supported by material and objective evidence and data within a specific theoretical framework. Theoretical studies that deal with ideas and opinions without supporting them with evidence and data are not considered "scientific".

Studies that collect statistics and evidence without systematically interpreting and analyzing the data are also not considered "scientific" studies because scientific interpretation and analysis are lacking. We can therefore say that scientific knowledge is located at the junction of theory and practice.

A/ Characteristics of scientific knowledge:

There are six characteristics of scientific knowledge, namely:

- **Accumulation:** Scientific research does not start from scratch but rather benefits from what has been previously published in its field. It provides an alternative or a novelty, or proves previous knowledge.

Thus, scientific knowledge grows and accumulates with each new research added to the scientific literature.

**Organization:** Scientific knowledge is organized and systematic knowledge that can be evaluated with clear and specific evidence.
- **Causality**: Causality is a complex issue in the social sciences, and it must be verified that there is a causal relationship and not just a correlation between two variables.

- **Precision**: Precision in the choice of scientific research methodology and in the use of terms and concepts.

- **Objectivity**: The researcher must be neutral, disregarding himself/herself as much as possible, and studying the facts and data as they really are.

- **Generalization**: Generalization is only possible if the sample is representative. For example, the results of qualitative research cannot be generalized because the sample size is often small and unrepresentative.

### III/ Terms to know in scientific research

**A/ Objectivity and subjectivity:**

Subjectivity and objectivity were among the topics that provoked heated debate among researchers at the turn of the 20th century. Despite the desire for impartiality and total objectivity in scientific research, social scientists recognize that it is very difficult to completely eliminate subjectivity; therefore, a distinction is made between scientific objectivity and subjective research.

Objectivity is only possible, in scientific matters, if one breaks with the immediate object, because any objectivity denies the first contact with the object. Again, it is necessary to agree on the notion of scientific fact: any experiment on reality already informed by science is an experiment on scientific thought.

Another characteristic of scientific knowledge is its objectivity. There are three conceptions of objectivity:

1. Objectivity as conformity to the object. This conception is based on observation and its interpretation. It does not take into account the gap between objectivity and truth nor the relative point of view of the observer;
2. Objectivity as intersubjectivity. Scientific knowledge would be objective knowledge to the extent that several subjects engaged in the same practice would obtain the same results. For centuries, all scientists have believed objectively and intersubjectively that the sun revolves around the earth...

3. Objectivity as an exercise of the critical mind. For K. Popper, a practice is objective if it is open to discussion. Popper joins Kant in his use of the terms objective and subjective.

The objectivity of any statement lies in the fact that it can be tested. According to Kant, the term subjective applies to our feelings of conviction. A statement can never be verified by subjective experience or any feeling of conviction. Therefore, says Popper, if we want to be objective, the statements that are part of the empirical basis must be objective. They must be testable, because in science there can be no ultimate statements (statements that cannot be tested).

These three conceptions of objectivity allow us to say that if scientific knowledge is controllable by others and subject to critical discussion, it is not, however, free of subjectivity. Any scientific conclusion remains relative, partial and open to question.

Scientific objectivity consists in restricting the researcher to the scientific methodology of the research. In this sense, objectivity consists in not including the opinions and points of view of the researcher in the research process, which must follow its own specific rules. As for subjectivity, it is the human factor in the study, because the researcher is a human being and has personal tendencies, beliefs and opinions that may be a primary motivation for choosing a research topic or for choosing a theoretical framework for analysis and interpretation. Therefore, researchers strive to reduce their subjectivity and be as objective as possible in addressing the research question, but there is always a margin of subjectivity in choosing the topic and writing the study.

Therefore, a distinction can be made between the objectivity of the research method and the objectivity of the research writing. The objectivity of the scientific method is one of the most important
characteristics and fundamental constants of any serious research work that aspires to present new scientific knowledge.

As for the subjectivity of the writing, it is limited to the writer's style, the subjects on which the subjectivity of the writing is limited to the writer's style, to the topics on which he/she chooses to focus, and to the way in which he/she interprets the evidence and data. Subjectivity can be controlled and reduced by clarifying the boundaries and discussing them within the methodology. The possibility of subjectivity in writing the study does not preclude the need for specific limitations and methods in writing scientific research that requires the use of precise terminology and systematic analyses, ruling out thoughts and opinions that are not based on scientific data and analyses.

Subjectivity can be reduced by having more than one researcher involved in the research project or by enlisting the help of researchers and colleagues to read the research and comment on the method of treatment of the topic and writing of the study. It is also important for the researcher to train him or herself to always ask the opposite question: why not? The researcher's efforts to approach the issue from different points of view and to take it out of the private realm, which is affected by his/her opinions and inclinations, can greatly help to reduce subjectivity and strengthen the researcher's argument and analysis.

B/ Verifiability:

According to neopositivists, sensible experience provides the only legitimate basis for knowledge. For them, scientific knowledge consists only of statements derived from sensible experience. An empirical statement is scientific if and only if it can be verified, that is, if it can be recognized as true or false.

C/ Scientific thought:

Scientific thought results from an addition of work and discoveries which, in themselves, generate progress. An isolated worker making a discovery will have to admit that he would not have found it on his own. There are thus two axes:
- the first is that of the theoretical city which will study all the knowledge already acquired by a science; "It is necessary first to read books, many difficult books and to establish oneself little by little in the perspective of the difficulties" (Bachelard, 1974).

- The second axis is that of the technical city whose task is purely technical. It is necessary to handle, to build and to invent unceasingly new devices and new techniques allowing the progress.

The cooperation of these two axes and their mutual understanding build the new scientific culture. The rational, the technical and the social are all three integral parts of the philosophy of science. If we forget one of these objectivities, we end up with a utopia, and no longer with reality.

D/ Determinism:

Determinism puts forward the hypothesis that everything is determined in advance. It is thus opposed to empiricism which advances by experience. Determinism tries to decipher the symptoms and enigmas of nature in order to understand it. Determinism thinks in terms of totality, solidarity and infinity. The universe would be a whole which would function as such and not in small distinct entities. Gaston Bachelard (1974), introduces the notion of causality in determinism. The human function is to seize the major causes of the universe to explain it.

The causes are hidden. They are sought, and these searches lead to errors which, in their infancy, will gradually lead us to a fragment of truth. Let us notice finally that the human technique, the way in which the human used and tamed the nature for its own needs, is done in spite of the nature itself chaotic and not controlled.

E/ Simplicity:

The concept of simplicity raises difficulties by the fact that it is unexplained. It is not obvious which theories are the simplest, even if we admit to using them for reasons of simplicity.

Popper (1973) excludes the application of this notion to an account; he proposes to try to distinguish theories that are not logically equivalent
according to their degree of simplicity. To clarify the notion, he assimilates it to the degree of falsifiability.

By virtue of the relationship of proportionality established between the degree of universality and precision of a theory and its degree of falsifiability, Popper identifies the degree of rigor with the degree of falsifiability. A higher degree of falsifiability corresponds to a greater simplicity. The advantage of a simpler statement is thus the same as that of a highly falsifiable statement: it conveys more information, has a greater empirical content, and is easier to test.

Conventionalists choose the simplest theories on the basis of a concept that is fundamental to them, but unrelated to the degree of falsifiability; their recourse to simplicity thus never saves them from arbitrariness. According to Popper, a system is complex to the highest degree if, like the conventionalists, it is considered as irrefutable and is saved by means of auxiliary hypotheses.

### IV/ Ethics of scientific research

The first goal of any researcher is to obtain information and data.

Not all methods of obtaining information are legal and ethical. The ethics of scientific research require respect for the privacy of research participants, the preservation of their rights and respect for their opinions, and the preservation of the safety of the participants and the researcher - at any cost! It is true that the ethics of scientific research often limit access to information. However, there is a consensus in scientific research today that respecting research ethics is a priority, even at the expense of access to information.

### V/ Impact Factor (IF)

The impact factor (IF) is the most widely used indicator of journal awareness currently used to evaluate publication.

It is calculated from the bibliographic database Web of Science Core Collection (WoS) of the American company Clarivate Analytics. The WoS
indexes 12838 scientific journals across all disciplines including the humanities, social sciences, and arts. Among these journals, 12827 had an impact factor and were registered in Clarivate Analytics' Journal Citation Reports (JCR).

JCR - https://jcr.incites.thomsonreuters.com/

The impact factor of a journal is the average number of citations of the journal's articles relative to the number of articles the journal publishes. By default, it is calculated for a publication period of two years.

It is referred to as a "citation" each time an article is cited by another article. In the calculation of the impact factor, the articles taken into account are those of the journals registered in the WoS database. This calculation also includes citations made by articles from the same journal (or "self-citations").

The impact factor of a review for year N is calculated by the following ratio:

$$FI \text{ (year N)} = \frac{\text{number of citations made by WoS journal articles published in year N}}{\text{number of journal articles published in N - 1 and N – 2}}.$$ 

Example: Journal X published 65 articles in 2018 (N - 2) and 59 in 2019 (N - 1), for a total of 124 articles. In 2020 (year N), articles published in 2018 received 37 citations by other articles (from other journals or from X) and articles published in 2019 received 37 citations, for a total of 74 citations.

$$FI \text{ 2020 } "X" = \frac{74}{124} = 0.597$$

The impact factor of a journal for year N is published in the middle of year N + 1 on the JCR website.
VI/ Knowing the main sources of scientific information on the internet

The sources of scientific information are very varied:

- search engines specialised in academic literature,
- bibliographic databases,
- catalogues, open archive directories, directories
- social networks, blogs.

All these sources are diverse in their content, their volume (a few hundred to several million bibliographical references), their technical system and their purpose (commercial or open access).

They are part of the information market, which is very changeable: new companies appear, others disappear, and this is also true for the tools they offer.

Pay attention to the quality of the information found on the web where the best rubs shoulders with the worst (fake news, pseudo-science...). Anyone can publish any type of information without any validation. A good knowledge of the relevant sources in your field is acquired through experience. Do some tests and ask for advice from the document lists in your institution.

VII/ Distinguishing: epistemology, ontology and didactics

The term epistemology appeared at the beginning of the 20th century to designate a branch of philosophy specialising in the study of theories of knowledge. It gradually became synonymous with the philosophy of science. Epistemology is the study of the constitution of valid knowledge. Epistemology is therefore mainly concerned with the following three questions: What is knowledge? How is it elaborated? How is the validity of knowledge justified?

The word epistemology is, of course, polysemous; it encompasses the methods specific to each science or scientific field, as well as the approaches of scientific thought in general, but it can also refer to the
problem of scientific truth. It tries to keep all these meanings, in a synthetic sense, which would remind us that epistemology is a reflection on the construction and management of knowledge in a given field and in its relation to other fields of scientific thought. We will be even broader by considering that epistemology is also interested in the way knowledge is constructed for each individual; this is where the word "positioning" takes on its meaning.

1/ Know the epistemological paradigms:

The paradigm is an epistemological term for a model of thought in scientific disciplines. So, a scientist works within a paradigm, i.e. a set of theories, methods, acquired results, presuppositions..., shared by a community of scientists working on a specific field.

When faced with a research problem, the question is: what types of research are appropriate for the researcher? The determination of the type of research is considered according to the philosophical and epistemological status concerning the nature of the world and how it is understood. The aim of the researcher is to adopt an approach that enables him/her to achieve an objective, to find a solution to a situation or problem facing him/her: the syndrome of truth and perfect explanation.

The production of a reason or pure truth is at the heart of the philosophical and methodological debate concerning the place of the researcher in philosophical paradigms and therefore on what foundations he or she is basing his or her work. In order to identify the philosophical position of the researcher, it is essential to see where he or she stands in relation to the major paradigms that may encompass the researchers' vision of the world.

One vision of research can be seen under the qualitative versus quantitative paradigm, while a second position is centred on two traditions: positivism and phenomenology. It is an epistemological choice between a rational or an existential approach, similarly we can extrapolate a continuum between a material (empirical) determinism and a mental determinism (rationalism) which is similar to a positivist versus phenomenological position.
In the literature, we can see the existence of a single view of quantitative paradigms, while it shows us the existence of at least four paradigms in qualitative research, from the objective to the subjective position, namely: axiomatic, positivist/empirical logic, interpretative and critical theory. This distinction between qualitative versus quantitative is a consequence of the subject/object dualism.

2/ Constructivist vs. positivist paradigms:

Each discipline, and even each laboratory, each teacher, may have a particular way of expressing what is "scientific" knowledge, resulting from research. These questions have given rise to endless debates for a long time, throughout the history of science. But there is a common core that we would like to state now around two elements.

In what follows we focus on two important paradigms, namely positivism and constructivism:

In a positivist/rationalist position, the world is external to the individual. In this position, the emphasis is on observable facts in order to validate the approach or theoretical reasoning developed. Thus, truth is viewed from an objective point of view as a product of pure reason.

There are two hypotheses of the positivist paradigm:

1- The ontological hypothesis: "the essential reality of existential reality". The knowledge that science progressively constitutes is the knowledge of reality, a postulated reality independent of the observers who describe it. The modeller knows that the asymptote (reality), exists, independent of his calculations or tracings, and he knows that he has some methods enabling him to assess whether he is getting closer (verifiability) or further (falsifiability) from this asymptote which he may never reach.

2- The deterministic hypothesis: determinism is causalism: each effect of reality is produced by a few causes.

In a constructivist or phenomenological/existential perspective, the world is considered as a social construct and as the product of intuitions and "feeling" determined by individuals. For this current of thought, there is no
effective criterion of scientific truth. Thus, research is defined through the activities and interventions of actors through their cognitive processes.

There are two hypotheses of this paradigm:

1- **Phenomenological hypothesis:** irreversibility of cognition, the status of the time of action, and more specifically its irreversibility. Thus, the knowing subject has the decisive role in the construction of knowledge.

2- **Teleological hypothesis:** not only is the cognitive behaviour of the knowing subject more readily interpreted in terms of final causes than in terms of efficient causes, but above all the determination and transformation of these finalities very often seem to have to be interpreted in endogenous terms, self-produced by the subject himself.

We can summarise this opposition through the principles already defined and developed. The principles of a positivist epistemology: ontological principle, principle of the wired universe, principle of objectivity, principle of the naturalness of logic, principle of least action. In opposition the principles of constructivism: principle of representability of the experience of reality, the principle of the constructed universe, the principle of subject-object interaction, principle of general argumentation, principle of intelligent action.

The structurationist or interpretative perspective implies that social structures are seen as being determined by, and determining for, human actions. In order to overcome certain unease about this division between positivism and constructivism, or rather a refusal and a proposal to go beyond this debate on the nature of the knowledge produced. Hence a new approach concerning a recursive abduction/deduction/induction loop by trying to integrate the different approaches within the same conceptual scheme.

We conclude that the project of positivism is to explain reality, that of interpretativism is to understand this reality and that of constructivism is to construct it. The significant difference between the paradigms is particularly in the implication of their consequence in the conduct of
research. Thus the philosophical position of the researcher is seen as a determinant of the research method employed.

**A/ Induction and deduction:**

The passage from a punctual observation to an overall consideration (or the reverse) is in any case an essential problem. In this respect, we must distinguish two main procedures:

- Induction allows to start from an observation which, if it is repeated, will allow to emit a general law ("inductive" method),

- Deduction, on the contrary, starts from a theory or a general rule and tries to verify if it applies in the observed situation.

We can see that the Natural Sciences began by being inductive before being able to emit general laws, which we then tried to solidify by testing them in many specific cases. By repeating the experiment, one realizes that the phenomenon is identical and thus one can propose a scientific "law".

Some disciplines, such as psychology, economics, management, and more rarely sociology, trusting in the existence of laws or rules already elaborated in the course of their history, proceed mainly by issuing hypotheses that one seeks to validate (or invalidate) in the reality studied. This approach is called "hypothetical-deductive".

Others, on the contrary (history, ethnology, for example), are essentially inductive: they privilege specific observation and only cautiously look for regularities.

We can thus observe the complementarity of the two processes in the course of the research. But it is not always possible to go through the whole process (induction then deduction). The researcher will therefore have to choose the process that is best adapted to his subject and to the state of development of his field.

Some disciplines and research centers clearly favor one or the other (inductive or hypothetico-deductive methods).
In order to justify the methodological choice, we will present the two basic methodological orientations available to the researcher: the inductive method and the deductive method.

The inductive method: in principle the most scientific and realistic method, since it starts from the facts to arrive at the idea that constitutes the hypothesis. From this confrontation with the phenomena, with reality, the hypotheses are born.

- The hypothesis can be induced, intuitively. Instead of being a conclusion of a logical reasoning, nourished by numerous facts and solidly argued, the hypothesis is born here from an idea that arises from the confrontation and the examination of elements that are few in number but judged particularly significant and enlightening for the researcher. It is the fruit of an "inner illumination" for the researcher.

- The hypothesis can also be rationally induced. This approach consists of exploring the observed facts at length and rationally constructing a hypothesis by taking into account the maximum amount of information, in an effort to be as faithful as possible to reality.

- The hypothesis can also be induced. It is the formulation of a hypothesis that arises from the observation of an isolated, unexpected and (statistically) aberrant fact, which cannot be explained by the hypotheses that had been previously adopted or with regard to established theories. This approach includes a theoretical reference because, if the hypothesis is indeed born from the facts, their significance lies in their confrontation with the hypotheses or theories that they contradict.

In other words, the inductive approach is an important basis of the research process, especially when we are in a new field. With the inductive approach, one starts with limited observations, and from these observations, one will infer hypotheses and theories.

The deductive method: the researcher draws on pre-existing ideas: the hypothesis is deduced from previously formulated ideas.
- The hypothesis can be deduced from a theory already formulated: in this case, the phenomenon is considered to be a particular case that can be linked to a more general theory and the explanatory elements are sought in this general theory.

- The hypothesis can be deduced from previous work. In this case, the hypothesis is established on the basis of hypotheses used by other researchers which, in cases of the same type, have proved to be more or less fruitful. Ultimately, one can, in this perspective, establish a grid of hypotheses already used for a given type of phenomenon, which one will try to apply successively to the phenomenon on which one is working. The description of this method highlights the researcher's interest in knowing about previously published works related to the object of his research.

- The hypothesis can also be deduced by analogy. For example, in order to construct a hypothesis concerning social phenomena, one compares them to phenomena of another nature (e.g. biology) and draws inspiration from the ideas formulated about them.

In other words, the construction of the hypothetico-deductive model starts from a postulate as an interpretation model of the studied phenomenon. This model generates, through a simple logical process, hypotheses, concepts and indicators to which it will be necessary to look for correspondents in reality.

The deductive method, which consists of deducing hypotheses from existing theories and/or works, can be applied to our research object insofar as the literature on the subject is numerous.

The choice of this hypothetico-deductive method seems judicious to answer a starting question of the type: what are the factors making it possible to determine the economic effects of the regional imbalance of the ?

Indeed, the deductive method consisting in deducing hypotheses from existing theory and/or works can be applied to our research object insofar as the literature on the subject is numerous.