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Rethinking The Feasibility of Pancasila as a Scientific Paradigm

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Abstract: *Some academics and state officials in Indonesia argue for the adoption of Pancasila as a scientific paradigm for the country's scientific endeavours. They believe that using Pancasila as a foundation could give Indonesian science a distinct and unique character. However, this article seeks to reevaluate the feasibility of Pancasila as a scientific paradigm. By reviewing the literature on Pancasila and the philosophy of science, it arrives at the conclusion that Pancasila cannot serve as a scientific paradigm, either in a narrow or comprehensive sense. Two primary reasons support this conclusion. Firstly, Pancasila lacks the necessary characteristics of a well-established scientific achievement. As a result, it cannot function as a scientific paradigm in the narrow sense defined by Kuhn. Secondly, Pancasila carries theological baggage that surpasses science's capacity to accommodate it. This aspect prevents Pancasila from becoming a comprehensive scientific paradigm. Consequently, I propose that Pancasila is more suitable as an axiological basis for science, rather than a scientific paradigm. Unlike a scientific paradigm, this axiological foundation does not fall within the epistemic scope of science.*

Keywords: *Pancasila; Scientific paradigm; Philosophy of science.*

1. Introduction

One popular view regarding the relationship between Pancasila and science is that Pancasila should serve as a scientific paradigm in Indonesia. This perspective has been expressed by several state officials and academics who are dedicated to the study of Pancasila.

For instance, Minister of Law and Human Rights, Yasonna H Laoly, representing President Joko Widodo, emphasized the importance of establishing Pancasila as a scientific paradigm during his speech at the 2022 Symposium on State Ideology and International Conference on Digital Humanities held at the Bandung Institute of Technology (ITB). Furthermore, Acting Head of BPIP, Hariyono, also shared this view in 2019 (Rinaldi, 2019).

From academia, Sudjito, former Head of the Center for Pancasila Studies at Gadjah Mada University, also holds a similar view. In a paper presented at the Lecturer Training event at the Pancasila and Constitutional Education Center, the Constitutional Court of the Republic of Indonesia, Sudjito wrote that "making Pancasila a scientific paradigm is of great importance and, therefore, needs to be strengthened" (Sudjito, 2015). The same idea was also reiterated by Sudjito in a proceeding (Sudjito & Hariyanti, 2018).

In 2006, Gadjah Mada University (UGM), in collaboration with the Indonesian Institute of Sciences (LIPI) and the National Defense Institute (Lemhannas), held a symposium entitled "Pancasila as a Paradigm of Science and National Development." Furthermore, a textbook for the Pancasila Education course, compiled by the Ministry of Research, Technology, and Higher Education team in 2016, explicitly stated that "the formulation of Pancasila as a scientific paradigm for scientific activity in Indonesia is necessary" (Tim Penyusun, 2016).

This article aims to reconsider the notion of Pancasila as a scientific paradigm. I have previously written an op-ed in *Kompas* expressing the view that Pancasila is not and cannot be considered a scientific paradigm (Taufiqurrahman, 2023). In this article, I will provide a more comprehensive explanation of why Pancasila cannot serve as a scientific paradigm. Additionally, I will anticipate and address potential counterarguments that may challenge this view.

Therefore, the discussion of this article will be structured into three main parts. The first part will delve into the concept of Pancasila as a scientific paradigm, followed by the second part, which will clarify the concept of a scientific paradigm itself. The third and central part of this article will present an argumentative explanation for why Pancasila cannot serve as a scientific paradigm.

2. Discussion

Pancasila was originally established as the foundation of the state. However, recently, an idea has emerged from several individuals to transform Pancasila into a scientific paradigm. This discussion section will thoroughly examine this idea.

2.1. The Notion of Pancasila as a Scientific Paradigm

The notion of Pancasila as a scientific paradigm was not recognized by the Pancasila framers themselves. If we examine the Minutes of the BPUPK Session, none of the participants during the session proposed the idea of making Pancasila a scientific paradigm. This is certainly understandable, considering that the concept of a paradigm itself had not yet been conceived at that time.

Based on my research findings, the notion of Pancasila as a scientific paradigm first surfaced in 2006 during a symposium organized by Gadjah Mada University. However, despite the symposium's title being "Pancasila as a Paradigm of Science and National Development," there lacked a clear and comprehensive formulation of what is precisely meant by "paradigm." According to the press release published in the proceedings, this symposium appeared to have an axiological orientation rather than a paradigmatic one:

> "...it is time for UGM to think about the concept and implementation of Pancasila as a value system for mastering science," ("Pancasila Sebagai Paradigma Ilmu Pengetahuan Dan Pembangunan Bangsa: Press Release," 2006).

This axiological orientation also surfaced in an article written by M Sastrapratedja. He explained that Pancasila plays two roles in relation to science. First, Pancasila can act as a basis for policies related to the development of science. Second, Pancasila can serve as the foundation for the ethics of science (Sastrapratedja, 2006).

As a set of values, ranging from the values of divinity, humanity, unity, and democracy, to justice, Pancasila does possess sufficient resources to serve as the basis for policy or an ethical foundation for the development of science. However, to function as a paradigm in the sense of a framework that provides a specific and comprehensive view of the world, Pancasila is grossly inadequate. This problem was also recognized by Sastraprassedja himself:

"In my opinion, Pancasila does not offer a specific view of the universe in such a way that it is embraced by scientists, thus making it a shared consensus as a scientific 'paradigm'," (Sastrapratedja, 2006).

As if ignoring what was stated by Sastrapratedja, the Results Formulation section in the proceedings of this symposium presents an orientation towards developing a scientific paradigm that is based on Pancasila.:

"With Pancasila as the foundation of a scientific paradigm, the development of science can be liberated from its tendency to only deal with physical 'subject matter', but also with metaphysical ones," (Tim Perumus, 2006).

Based on the Result Formulation, what is referred to as the Pancasila paradigm is a framework that broadens the scope of science: science deals not only with physical phenomena but also with metaphysical entities. Although the term "metaphysical" is not explicitly explained, we can infer that it pertains to elements that cannot be observed empirically, as it stands in contrast to physical phenomena.

Thus, the scientific paradigm discussed in the symposium encompasses two senses, namely (1) the axiological sense and (2) the comprehensive sense. The former regards Pancasila as an axiological basis for the development of science, while the latter interprets Pancasila not only as an axiological foundation but also as a metaphysical and epistemological one. Although I do not agree with the use of the term 'paradigm' to refer to an axiological conception, I do agree with the effort to establish Pancasila as the axiological foundation of science (Taufiqurrahman, 2023). Therefore, this article will only challenge the idea of Pancasila as a scientific paradigm in the comprehensive sense.

It is the comprehensive sense of scientific paradigm that dominates the discourse on Pancasila and science in subsequent developments. In this comprehensive sense, Pancasila not only imposes several metaphysical claims on science but also includes theological claims. Sudjito, for example, wrote that:

"The ontology of science must encompass reality in its entirety, including theological, metaphysical, and physical-empirical aspects," (Sudjito, 2015).

This theological baggage emerges from the interpretation of the first precepts of Pancasila. Therefore, science within the Pancasila paradigm must also carry the theological baggage inherent in Pancasila itself. In other words, science based on the Pancasila paradigm must be theistic in nature (Sudjito, 2007, 2015).

Pitoyo (2006) also burdens science with the theological baggage of Pancasila, although he does not use the term 'paradigm'. According to him, science must be directed to uncover all realities which, according to the Pancasila ontology, consist of several levels, starting from God, humans, animals, and plants, to inanimate objects.

Pancasila's ontological stratification of reality has implications for its epistemological formulation. God can be known through the act of believing, humans can be known through the act of understanding, while non-human objects can be known by the act of knowing. Science must adapt its methods to the object it wants to understand. If the object is God, then the method is meditative contemplative. However, if the object is human, then the method is *verstehen*. If non-human objects are to be known, then the method is *erklären* (Pitoyo, 2006).

Pitoyo's formulation is one of the efforts to establish Pancasila as a scientific paradigm in a comprehensive sense. This idea will be scrutinized in the third section after I have clarified the concept of paradigm in the second section.

2.2. Clarifying the Concept of Scientific Paradigm

The concept of 'paradigm' was first introduced into the philosophy of science by Thomas Kuhn in *The Structure of Scientific Revolutions*, which was first published in 1962. Kuhn was one of the first philosophers to approach *science* with a historical perspective. Within the framework of this approach, science is not only discussed in terms of its content but also in terms of its historical development.

The standard view of the history of the development of science sees science as evolving cumulatively: new theories add new truths to old truths, leading to a gradual and increasingly perfected development of scientific knowledge. Kuhn rejected this standard view. According to him, science does not always progress cumulatively but can also, and more often, progress through revolutions. In other words, science evolves by replacing old theories with entirely new ones (Bird, 2022).

Therefore, according to Kuhn (2012), the history of the development of science always goes through two phases, namely the normal phase and the revolutionary phase. The normal phase is when scientists work like someone who aims to solve a puzzle by methodically following certain guidelines. These guidelines are analogous to the paradigm.

The paradigm is obtained from the results of a lengthy process in the pre-paradigm phase. During this phase, scientists engage in extensive debates about methods, fundamental issues, and standards within a specific field of science because they do not yet have mutually agreed-upon basic guidelines (Kuhn, 2012) These debates give rise to several schools of thought. Eventually, one of these schools becomes dominant due to various factors, leading it to be recognized as the paradigm within related fields of science.

Once a paradigm has been established, and the previously intense debates have begun to subside, the field of science enters the normal science phase. In this phase, scientists focus on solving smaller problems without questioning the agreed-upon paradigm. As a result, there are no fundamental breakthroughs during this phase (Kuhn, 1996). Minor anomalies that arise in this stage are not seen as reasons to question or let alone, reject the established paradigms.

However, the phase of normal science does not last forever, so fundamental novelties can still emerge in science. When numerous anomalies appear, to the extent of weakening the basic assumptions of the established paradigm, the field of science will enter a crisis phase. During this crisis phase, scientists begin to question the fundamental assumptions of the scientific paradigm. It is in this phase that various theories, fundamentally different in explaining the same phenomenon, will emerge.

During the crisis phase, long and in-depth debates reoccur, similar to those in the pre-paradigm phase. Just like in the pre-paradigm phase, these prolonged and profound debates in the crisis phase will also conclude with the victory of certain schools of thought over others. The winning school will emerge as a new paradigm, replacing the old one. This is what Kuhn (1996) refers to as the revolutionary phase or paradigm shift. Such shifts occur in various fields of science. For instance, in physics, there was a shift from the Aristotelian paradigm to the Newtonian paradigm, and in astronomy, there was a shift from the Ptolemaic paradigm to the Copernican paradigm.

Thus, in Kuhn's view, the development of science goes through four successive phases: the pre-paradigm phase, the normal science phase, the crisis phase, and the revolution phase. The paradigm becomes a central aspect of the normal science phase. But what is the conceptual meaning of the 'paradigm'?

The discussion of paradigms in *The Structure of Scientific Revolution* appears for the first time in the chapter titled "The Route to Normal Science". In this chapter, Kuhn explains that what is referred to as 'normal science' is a research tradition based on one or several scientific achievements in the past that certain scientific communities have recognized as the foundation for subsequent scientific practices (Kuhn, 1996).

In order to be accepted as the basis of scientific practice, scientific achievements in the past must fulfil two conditions. First, this achievement must be unprecedented and possess better explanatory power than its rivals in describing the same phenomenon. Second, this achievement opens up the possibility of solving other problems for a group of scientists. When the two conditions are met, scientific achievement can serve as a scientific paradigm. Therefore, Kuhn then defines 'paradigm' as:

> "...some accepted examples of actual scientific practice—examples which include law, theory, application, and instrumentation together—provide models from which spring particular coherent traditions of scientific research," (Kuhn, 1996).

So far, the concept of paradigm seems fairly clear. However, it's worth noting that Kuhn uses the term 'paradigm' in *The Structure of Scientific Revolution* with 21 different senses (Masterman, 1970), indicating that the meaning mentioned earlier is just one of many. This multiplicity of usage can make it challenging for many readers to grasp Kuhn's concept of paradigm. Consequently, Kuhn wrote a postscript in 1969 for the second edition of *The*

Structure of Scientific Revolution, published in 1970, to provide further clarity on the sense of paradigm.

In the 1969 Postscript and also in "Second Thoughts on Paradigms" (1974), Kuhn prefers to use the term 'disciplinary matrix' rather than 'paradigm'. It is so-called because it is shared by scientists working in a particular discipline ('disciplinary') and consists of several components ('matrix'). What are these components? Kuhn (1996) mentions four things, namely (1) symbolic generalizations, (2) metaphysical paradigms or models, (3) values, and (4) exemplars. However, the most important ones are only three, namely (1), (2), and (4) (Kuhn, 1974)

Symbolic generalizations are symbolic expressions, either in the natural or formal language, used to represent general concepts. For instance, in physics, formulas like $f = ma$, $I = V/R$, or $E = mc2$ are well-known examples of symbolic generalizations. Metaphysical paradigms, on the other hand, represent certain beliefs about the world that are embraced by the scientific community. For instance, the belief that the heat of a body is the kinetic energy of its constituent particles, or more explicitly metaphysical, the idea that all perceptible phenomena are a result of the motion and interaction of qualitatively neutral atoms in the void.

The values that become component (3) of the disciplinary matrix are specific criteria that scientists must uphold in their scientific practice. Values like simplicity, consistency, or accuracy are among them. These values can be accepted by scientists across various disciplines. Unlike symbolic generalizations or metaphysical paradigms, which are usually exclusive to scientists within the same discipline, values such as accuracy and consistency can be shared by scientists from different scientific fields. For instance, physicists, astronomers, and biologists may collectively adhere to common values, such as simplicity and accuracy.

The exemplars that constitute component (4) of the disciplinary matrix represent a consensus by a particular scientific community regarding the best examples of scientific practice within a certain discipline. These exemplars can be found in classic books, such as Newton's *Principia*, Darwin's *on the Origin of Species*, or Ptolemy's *Almagest*.

Paradigm as a disciplinary matrix consisting of four components is a paradigm in a broad or global sense. However, in his clarification, Kuhn deems the global sense to be inappropriate. Consequently, he proposes a narrower definition, which defines 'paradigm' solely as an exemplar (Kuhn, 1996).

However, it's important to note that paradigm as an exemplar does not necessarily exclude the other three components of the disciplinary matrix. An exemplar, in simple terms, is an instance of solving a specific problem. As such, it can also involve symbolic generalizations. By learning an exemplary from a particular field of science, we gain insights into how to address concrete problems that may arise during experiments. Thus, we can find these exemplary instances not only in classic books but also in textbooks used in schools or experimental manuals for specific scientific fields.

At this point, we can immediately notice that the history of the development of science described by Kuhn, including the paradigms that play a crucial role in it, specifically pertains to the field of natural sciences. This can be seen from the examples provided by Kuhn. It is understandable since Kuhn himself has an educational background in physics. However, what about the social sciences? Do they also possess a paradigm?

This question has been debated for a long time. Even among those who agree that there are paradigms in the social sciences, there can be disagreements about what constitutes a social scientific paradigm. For instance, we can observe such a disagreement in the works of Robert Friedrichs (1970) and George Ritzer (1975) in the context of sociology.

Friedrichs was one of the first to attempt to apply Kuhn's paradigm concepts to sociology. After delving into Kuhn's notion of paradigm within the context of natural science, Friedrichs identified two dominant paradigms in sociology. These are the system paradigm (Friedrichs, 1970, p. 25) and the conflict paradigm (Friedrichs, 1970).

However, according to Ritzer (1975), Friedrichs was mistaken in identifying theory as a paradigm. The theory is not a paradigm itself but rather just one component of a paradigm. Ritzer then identified three types of paradigms in sociology: the social fact paradigm, the social definition paradigm, and the social behaviour paradigm. Unlike individual theories, these paradigms encompass several theories within each category. For instance, the social fact paradigm includes structural-functionalism and conflict theory, the social definition paradigm encompasses action theory, symbolic interactionism, and phenomenology, while the social behaviour paradigm covers exchange theory (Ritzer, 1975).

In Ritzer's framework, the paradigm determines the unit of analysis and method in sociology. The social fact paradigm selects social structure as the unit of analysis, whereas the social definition paradigm focuses on the individual as the unit of analysis. Therefore, what Ritzer refers to as a paradigm is essentially a philosophy of social science. The social fact paradigm aligns with methodological holism, while the social definition paradigm aligns with methodological individualism.

Apart from these two thinkers, many other scholars also recognize the existence of paradigms in the social sciences, particularly in sociology, albeit with different frameworks. Eckberg & Hill (1979, p. 930) record that there are at least 12 scholars who identify the sociological paradigm in various ways. For instance, one framework suggests the existence of two sociological paradigms, namely the positivistic and phenomenological paradigms (Walsh, 1972); whereas other frameworks propose three sociological paradigms, namely nomological, interpretive, and critical paradigms (Sherman, 1974).

The current perspective goes even further to assert that social science, in general, comprises 11 fundamental paradigms, and all of them are necessary for a comprehensive understanding of society (Tang, 2011). I will refrain from delving into a detailed discussion of which paradigm is correct and adequate, as it is beyond the scope of this article. However, it's worth noting that Kuhn's paradigm concepts have also found application in the realm of social sciences, with various scholars successfully identifying them, regardless of their accuracy. In the next section, I will critically examine the idea of Pancasila as a scientific paradigm, both in natural and social sciences.

2.3. Arguing against the Idea of Pancasila as a Scientific Paradigm

The idea of Pancasila as a scientific paradigm will be examined through two approaches. Firstly, we will assess the adequacy of Pancasila to serve as a scientific paradigm within Kuhn's narrow conception. Secondly, we will evaluate its suitability as a scientific paradigm in a comprehensive sense.

Let's start with the idea of paradigms as exemplars, which is the narrower conception preferred by Kuhn over the comprehensive one. The main question here is whether Pancasila can serve as an exemplar for certain scientific practices. By “exemplar”, we mean scientific achievements from the past that, due to meeting specific criteria, are established as examples or guides for current and future scientific practices.

Pancasila, both historically and philosophically, does not fall under the category of scientific achievement. Historically, it represents a political consensus intended to serve as the foundation of the state and the unifying force of the nation. As a result, the formulation of Pancasila was heavily influenced by political considerations.

The concept of a paradigm as an example is essentially a consensus among scientists within a specific scientific community, and the development of this consensus is influenced by sociological factors, including political considerations (Kuhn, 1996). However, it's important to distinguish between a scientific consensus and a political consensus. While a political consensus governs the operation and distribution of power, a scientific consensus guides the practice of science itself. From a historical perspective, Pancasila was never intended to be a scientific consensus, and as such, it cannot be classified as a scientific paradigm.

Some individuals might argue that Pancasila's position as the foundation of the state implies a scientific consensus. This would mean that Pancasila, as the basis of the state, has been collectively accepted as the framework for government policies governing all activities within Indonesia's territory, including scientific endeavours. However, this argument holds little weight since Pancasila's role as a policy foundation falls outside the epistemic scope of scientific practice. Government policies related to science development in Indonesia cannot dictate or intervene in specific scientific methods used in various disciplines. Consequently, the agreed-upon status of Pancasila as the state's basis is insufficient to justify its classification as an exemplar of scientific practice.

To be recognized as an exemplar, Pancasila must first be established as a scientific achievement. In other words, it needs to be demonstrated that it has successfully addressed at least one scientific problem in a specific discipline. Without such evidence, it cannot be deemed a scientific achievement and, therefore, cannot be acknowledged as an exemplar.

Supporters of the idea of Pancasila as a scientific paradigm may argue that it is not that Pancasila is incapable of becoming a scientific paradigm, but rather that it has not yet achieved that status. According to them, scientists from various fields in Indonesia should attempt to incorporate Pancasila into their scientific practices. Through this effort, if it can be shown to solve scientific problems effectively, it may be established as an exemplar. The underlying structure of this argument follows a premise like this: a) *For Pancasila* to *be considered as an exemplar, it must be demonstrated as a scientific achievement in a specific field of science; b) To establish Pancasila as a scientific achievement in a particular field of science, it should be applied in scientific practices within that field. Therefore; c) Pancasila should be applied in scientific practices in certain fields of science.*

The argument may be logically valid, but it lacks soundness when we examine the actual content of each premise. This examination involves delving into the philosophical aspects of Pancasila.

From a philosophical perspective, Pancasila consists of normative claims that cannot be directly derived from or applied to scientific practices. This fundamental characteristic of Pancasila makes it unsuitable for direct application in scientific endeavours. Thus, the second premise of the argument is inherently flawed.

Let me elaborate on the philosophical reasons why Pancasila cannot be directly applied to scientific endeavours. Apart from the first principle, all the principles of Pancasila are normative statements. Can normative ideals such as humanity, unity, democracy, and justice effectively solve scientific problems in physics, chemistry, biology, or geology? Clearly, the answer is absurd.

The essence of a scientific problem lies primarily in its epistemic nature. Here's a simple illustration: when a scientist encounters an anomaly in a natural or social phenomenon, he/she becomes curious about the underlying reasons for this peculiarity. To seek an explanation, the scientist employs diverse methods, ranging from experimentation and data analysis to critical reflection. Additionally, various scientific theories can be applied in the process of resolving the issue.

Normative values, such as humanity and justice embedded in Pancasila, cannot provide answers to a scientist's curiosity because they merely describe what ought to be, not what currently exists. Scientific problems cannot be resolved solely through normative values. In fact, these values can potentially become part of the problem, as in the case of questioning, "The government should be fair, but in reality, why isn't it fair?"

Furthermore, it's crucial to recognize the distinction between scientific problems and practical problems. Scientific problems demand epistemic solutions, while practical problems necessitate practical solutions. An epistemic solution involves an explanation that unveils the mysteries surrounding natural or social phenomena. For instance, an explanation of the propagation of light or of shifts in the political preferences of young individuals. Conversely, practical solutions refer to concrete measures aimed at resolving specific natural or social issues. These solutions could include concrete approaches to address climate change or effective strategies to tackle juvenile delinquency.

Normative values may be relevant in developing practical solutions, but they are not applicable when seeking epistemic solutions. When formulating practical solutions to issues like climate change, we can consider normative values such as social justice and humanity. However, when it comes to identifying the primary factors of climate change, normative considerations are irrelevant.

Moreover, scientific problems undeniably demand a posteriori epistemic solution. If the required solution is a priori, then the problem becomes trivial and, therefore, not a scientific one. For instance, consider the question of why a war occurred. If the answer sought is "due to the loss of human values," the question transforms into a non-scientific inquiry because (1) the relationship between the loss of human values and the occurrence of war cannot be scientifically studied, and (2) the connection between human values and humane behaviour (including avoiding war) is a trivial relationship that can be known a priori. In other words, understanding that war happens because of the loss of human values doesn't necessitate scientific research. However, if the desired answer to this question pertains to the global political economy context behind the war, then it becomes a scientific problem that demands a posteriori epistemic solution. To find the answer, we require scientific research that is not based on a priori knowledge.

Therefore, there is no place for a priori considerations in scientific problems. Since normative values fall under the category of a priori, it implies that there is no space for them in scientific problems. As a result, Pancasila cannot contribute to solving scientific problems, making it impossible for it to be regarded as a scientific achievement.

Now, let's move on to the second assessment, which examines how suitable Pancasila is as a comprehensive scientific paradigm. A comprehensive paradigm, in this context, refers to a disciplinary matrix that encompasses more than just exemplars of scientific practice. It also includes models of the world that may have some metaphysical aspects. Beyond just being a disciplinary matrix, a comprehensive paradigm can also be perceived as a metaphysical, epistemological, and axiological foundation for science.

Due to its comprehensive nature, the paradigm in this context appears to offer flexibility for Pancasila to play a role. Through its first precepts, Pancasila demonstrates a particular metaphysical commitment, namely the belief in the existence of one and only God. Nevertheless, the question arises: can this (mono)theistic metaphysics of Pancasila serve as a basis for scientific practice?

Indeed, the post-positivist philosophy of science has now embraced metaphysics, giving rise to the field of 'scientific metaphysics'. This field delves into crucial concepts that are intrinsic to science, such as causation, natural law, necessity, possibility, reduction, and emergence (Kistler, 2020). Metaphysical perspectives on these concepts play a role in shaping how scientists formulate their theories and how the scientific community interprets certain scientific hypotheses.

Metaphysics became increasingly intertwined with science when Quine (1948, 1951) introduced the concept of ontological commitment of a theory:

"A theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order that the affirmations made in the theory be true," (Quine, 1948).

In other words, a theory has an ontological commitment to a specific entity if the truth of the theory requires the existence of that entity.

Quine's perspective poses a challenge when dealing with unobservable entities. Consequently, in the philosophy of science, there is an ongoing debate about the ontological status of these unobservable scientific entities. The scientific realist viewpoint asserts that entities like electrons and neutrons are real and exist independently of a scientist's mind, while the scientific anti-realist stance rejects such a realist notion. According to the anti-realist perspective, unobservable scientific entities are not real and are merely theoretical constructs of the scientific mind (Chakravartty, 2017). This metaphysical outlook on the ontological status of unobservable scientific entities can significantly influence how scientists comprehend and interpret scientific theories.

However, Pancasila, with its theological baggage of (mono)theism, cannot serve the same function as the aforementioned metaphysical views in scientific discussions. Introducing theological elements into scientific discourse is like overloading a horse-drawn carriage with containers. The carriage becomes incapable of moving forward because it carries loads that should be transported by ships or trains. In other words, these theological claims lie beyond the realm of scientific inquiry.

While metaphysical views like scientific realism acknowledge the existence of unobservable entities, they can still find a place within scientific discourse. This is because the entities posited by scientific realism are still within the realm of scientific investigation. For instance, although electrons or genes are not directly observable, their effects can be observed and measured in experiments. In contrast, theological claims cannot find a place within scientific discourse because scientists cannot conduct experiments to detect the existence of God. As a result, attempting to establish Pancasila as a scientific paradigm, even in a comprehensive sense, would be inappropriate.

3. Conclusion

The preceding discussion has demonstrated that Pancasila cannot serve as a scientific paradigm, either in the narrow sense defined by Kuhn or in a comprehensive sense. The first reason is that Pancasila is not and cannot be a definitive scientific achievement. The second reason is that Pancasila comes with theological baggage that surpasses the boundaries of science's capacity to accommodate it. Hence, I propose the perspective that Pancasila's role in relation to science should not be seen as a paradigm, but rather as an axiological foundation. Unlike a paradigm, this axiological basis does not pertain to the epistemic realm of science. Instead, it serves as a basis for contemplating how scientific practices, as an integral part of social activity, should be conducted. Consequently, this axiological basis falls within the scope of science policy. However, due to space constraints, I am unable to delve into Pancasila's position as the axiological basis of science in this discussion. I will leave this matter to other researchers who are interested in exploring the relationship between Pancasila and science.

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