

# Can Science save us?

## Brainstorming

conceptualizing science

Science: inductive reasoning (1)

fallibilistic view of knowledge (2)

rationality (3)

empiricism (4)

Revisionist (5)

Popper, (6)

Descartes → rationalism. (7)

What kind of problems can science solve

(a) measurable quantities

(b) unbiased collection of data  
(bounded rationality)

(c) clearly articulated problems.

Can science solve our problems

argument in favour

(a) Science leads to growth / economic innovation

(b) education

(c) competitiveness

(d) ethical thinking

(e) self sufficiency

Our problems are 'political' in nature and require political solutions.

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arguments against.

(a) Political problems require political solutions

- 1) education
- 2) economy
- 3) Basic freedoms
- 4) Rule of law and security

(b) Solutions must have legitimacy in the eyes / imp. of legitimacy.

(c) Science cannot generate consensus.

(d)  $\&$  Fault knowledge / power

e) bounded rationality

f) biased

(e) unending nature of scientific inquiry.

Science is ~~a~~ <sup>the</sup> ~~great~~ <sup>problems that</sup> tool and its benefits are ~~uncontested~~ but ~~over~~ the ~~problems~~ <sup>Pakistan's</sup> ~~problems~~ <sup>peace</sup> are hence political in nature and require political solutions. Moreover, ~~science~~ the scientific method cannot generate consensus, legitimacy and even its recourse to rationality is contested.

While science <sup>scientific method is</sup> is a great tool and ~~can be used effectively~~ can do wonders when used, but ultimately, its <sup>to</sup> ~~politics~~ <sup>that</sup> ~~we~~

# Outline

## a) Introduction:

**Thesis statement:** The scientific method is ill-suited to provide a solution to Pakistan's problems because political problems require political solutions. Science cannot generate legitimacy, consensus and equality; and even its recourse to rationality is contested due to the limits of human reason and the types of problems that can be tackled using the scientific method.

## b) An overview of science and the scientific method:

- 1) The importance of empiricism in the development of science: From Aristotle to Locke
- 2) Fallibilistic view of knowledge
- 3) Revisionist nature of science

## c) Existential problems facing Pakistan and a brief exploration of their causes

- 1) Political stability: An elusive ideal
- 2) Economic development as a key challenge for policy makers
- 3) Provision of a good educational system
- 4) Improving and protecting fundamental rights

## d) Why Science can't save us?

- 1) Root causes of our existential problems being political in nature
- 2) Inability of scientific method to generate legitimacy
- 3) Failure of science in developing consensus

4) The limits of human reason and the concept of bounded rationality

5) The discontinuous and socially constructed nature of scientific knowledge

6) The many prerequisites of science: rationality, availability of data, stability, investment

## e) Addressing counter arguments

1) Scientific innovation leading to economic development: The modernist idea

2) Science as the only uncontested truth

3) The ability of science to dispel backward practices in society: A case study of enlightenment

## b) Conclusion

# The Essay

The split between Plato and Aristotle was to be one of the most defining moments of philosophy. Plato emphasized the power of reason in finding eternal truths. Aristotle was more skeptical of such exalted truths. He was grounded in his philosophical leanings and emphasized the role of experience. Experience came from sensory inputs and was more applicable to the problems he observed in society. Centuries later, the scientific school of thought, characterized by an unrelenting search for truth, has transformed the world. There isn't an area of life which science hasn't changed fundamentally. This success of science has sparked the debate about whether science should be the ultimate authority on human problems. These problems have taken an existential toll on today's Pakistan. Problems of economy, education, fundamental rights and a politically stable environment have made science a viable alternative to look at. This

view of science, however is flawed. The scientific method is ill-suited to provide a solution to Pakistan's problems because political problems require political solutions. Science cannot generate legitimacy, consensus and equality; and even its recourse to rationality is contested due to the limits of human reason and the types of problems that can be tackled using the scientific method.

The foundations of science can be traced back to the empiricist tradition that began with Aristotle and culminated in the modern-day scientific method. Empiricism emphasizes the importance of experience built upon human sensations or observations. At first, this approach was looked upon as inferior to the exalted nature of the rationalist paradigm. But with the passage of time, it became clear that the rationalist school of thought was ill suited to finding durable solutions because of the lack of certain truths.

The empiricist tradition excelled at finding solutions because it relied on observations and the gathering of data. This connection to the real world demonstrated itself in Newton's discovery of objective laws of the universe which essentially kick started the scientific revolution. Having established a victory over abstract reasoning, the empiricists turned to solidifying this approach and one man was to play a central role in this.

Karl Popper came along and argued that the key difference between science and pseudo-science was that science made bold predictions and focused on falsification instead of validation. This was to be such an accurate description of science, that even today, ~~the~~ understanding of science is largely in compliance with Popper's observations. He distinguished between the kind of science that Einstein was engaged in and contrasted it with what ~~Popper~~ was doing. Einstein made bold predictions in his general theory of relativity

key characteristics of  
problems



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and was proven right when the predictions matched the observed results, years later. Freud, on the other hand, could always find evidence for what he claimed because of the very nature of his claim was ~~validatory in nature~~. This emphasis on falsifiability means that science considers knowledge to be a process, not a destination.

The final major theme in science is its revisionist nature. It has already been argued that the goal of science is incremental improvement towards ~~the~~ truth. If there is ~~not~~ no absolute truth, then how is knowledge going to be generated? The answer to this question lies in the revisionist nature of science. Any data contradicting current theories would make them obsolete. This ensures critical thinking and prevents blind adherence to principles.

Having determined the key characteristics of science, it is now the problems which plague Pakistan to which attention will be given.

Once these problems and their root causes are explored, it would then be feasible to check if the scientific method can provide a path out of this ~~these~~ situation.

The problem of achieving political stability is central to the current discourse on Pakistan's issues. Political instability has frequently brought the country on the verge of a crisis and many analysts debate about the root causes of this malaise that has haunted Pakistan since its inception. Three hypotheses claim the most legitimacy. The first cause is the 'grievance' hypothesis. This regards political instability as an effect of the perceived grievances of the population. It states that there is political instability because large portions of the population feel marginalized politically and economically. The second is the 'greed' hypothesis. It posits that the root cause of political instability is greed. Segments of populations feel that they have more to

gain with the current system gone. This view is prominent in resource rich countries like Pakistan where local elites prefer a weak state so that they can exercise control over natural resources. The final perspective is the "structural violence" perspective. It states that political instability occurs because the system works in a manner that perpetuates suffering. If a child dies of a disease when its cure is easily available, then structural violence would have said to have occurred because of the preventable nature of the disease. Alongside political instability, there is another problem that has plagued Pakistan since its inception.

Pakistan's economic problems affect its internal issues in obvious ways. A weak economy prevents governments from investing in the social sectors which makes the large population a burden upon the limited natural resources. The root cause of economic underdevelopment is bad governance characterized by lack of institutional integrity, nepotism, corruption and politics

of patronage. Dr Ishaat Hussain in his book "Governing the Ungovernable" argues that the popular explanations for economic growth such as the inflow of foreign funding leading to growth are wrong. Equally wrong is the idea that democracy leads to economic growth. He explains his thesis by looking at Pakistan's economy since its inception and finds that periods of economic growth always corresponded to domestic reforms. This is accurate because until 1990s Pakistan was one of the fastest growing economies in the region with a vibrant middle class and its economy roughly grew at 6% per annum regardless of whether there was democratic rule or not.

Another more immediate concern for Pakistan is the state of its education. Educational standards are suffering in all key areas: Quality, accessibility, innovation, critical thinking, and forwardness. The causes are several and there is little consensus on what is the root cause of the educational crisis. However, the most obvious

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However there is one factor on which there is consensus. The provision of funds to the cause of education ~~are~~ <sup>is</sup> insufficient to cover the mistakes that have been made and <sup>to</sup> regain ground in relation to global best practices. With the governments having to spend large portions of their budget on debt servicing needs, there remains little fiscal space for educational funding.

The problems mentioned until now, although of grave importance, do not constitute an immediate threat to the way people live their lives. The state's primary responsibility is to provide security and protect the fundamental rights of its citizens. Without fundamental rights such as right to life, liberty, speech; there is little efficacy if any in addressing the problems of economy, education and political stability. In 2024, roughly a thousand Pakistanis have lost their lives in the wake of terrorist attacks. The cause of this rise in terrorist attacks is Pakistan's complicated relationship.

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with Afghanistan. TTP-led government is stubborn and is unwilling to prevent TTP from operating from its soil.

This brief overview of our biggest problems highlight the factors which make life difficult for Pakistanis and prevent Pakistan from taking its rightful place among the comity of nations. A common theme connecting all these factors is the fact that although science can bring improvement in specific areas and in specific sectors, the major existential concerns of Pakistan and the rest of the world are political in nature. This realization, that our problems are political in nature is key to saving humanity at large, and Pakistan in particular. Technical framing of our problems mask the human element and wreaks of determinism. Scientific advancements might have done wonders but the same technologies are often employed for destructive purposes as well. In this regard, it is politics and policy-making that restricts science

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to its good uses. This relationship between politics and science needs to be understood so that human problems and suffering are not framed in technical terms.

The second main reason for the inability of science to save us is the lack of its popular appeal. Science is characterized by cold and calculated reasoning whereas people are ultimately emotional and they have irrational attachments to the things that they care about. Governments across the world have to garner legitimacy by responding to public demands. These demands are not framed in scientific terms. They are framed in political terms and application of scientific principles can further alienate marginalized portions of the population. Legitimacy determines compliance and lack of legitimacy leads to public disapproval of government. If people ask for low prices of petroleum products and the government responds by saying that this will lead to debt, then the average citizen will denounce

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the government. This happens routinely and is precisely the reason why governments make seemingly irrational decisions.

Another problem with science is that it cannot generate consensus among different stakeholders fighting and competing for scarce resources. If one were to apply the scientific method to a problem such as the distribution of financial resources among ~~the~~ the different federating units of a country, the results would fail to satisfy the marginalized because science is blind to inequality. Everything cannot be divided neatly because in real life, rules of division rarely hold. Politics fulfills this role by mutual compromise enacting and generating consensus by appeal to irrational interests of the various parties.



Another fundamental issue of science is that it cannot dictate which problems to prioritize. That in itself is a political decision and governments decide on different points of emphasis to satisfy their voter base. At any given time, there are a multitude of problems that people have to attend to. Psychologist Daniel Kahneman argues that deciding what the order of priorities reflects the bias of the decision maker. This means that even if we consider science as a perfect tool capable of solving all problems; it would still give rise to inequality because the decisions that would be made regarding prioritization would ultimately reflect the bias of the decision maker.

Michael Foucault raised another issue with the knowledge generated by science. He said that human scientific knowledge is far from the epitome of rationality which we take it to be. He emphasized the socially constructed nature of knowledge itself.

He argued that scientific institutions require funding for their various initiatives and this funding is controlled by powerful elites such as politicians.

Scientists often choose areas of study which maximize their funding and the same can also be said of the results. In his exploration of the "The history of madness", he argued that society's perception of madness changed in accordance with the political and social change occurring within that era. This also explains why, even with all the evidence present, there is still plenty of scientific literature that support the disastrous habit of smoking. As mentioned earlier, science might be great but its effectiveness is determined by political considerations.

So it turns out that science has a lot of prerequisites and in the real world such ideal case circumstances rarely exist. These preconditions such as rationality, unbiased observation and unconditional funding are rarely met and as a result

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science cannot be relied upon as a sole solution to our problems.

While the limitations of science in addressing Pakistan's problems in particular, and the world's problems in general, have been addressed, it is now to the counter arguments to which attention must be given.

After all, it is the scientific revolution followed by the industrial revolution that set the world on an exponential path to development. Proponents of this modernist idea argue that science has uplifted the living standards of people living both in the developed and developing countries. Incomes have increased; luxuries of life have permeated all positions of the society, and the world is moving towards an unprecedented era of prosperity. Such modernist ideas fail to account for the devastating loss of life in the wars waging in Ukraine and Gaza. The increase in income has occurred but it has not been in proportion with the overall increase of

wealth. Today inequality is on a sharp rise in both the developed countries of the north and the developing countries of the south. Science cannot account for the economic environmental devastation at the cost of which this unequitable growth has occurred. This obsession with raw economic growth is today being replaced by a more sustainable approach to growth but the call came from people, not equations.

Proponents of science like to argue that in a world fraught with divisions, only science can provide some semblance of truth. They argue that science can lead to the discovery of a truth behind which people can rally. This view is inherently unscientific as science rejects absolute truths and is built upon falsification and constant revision. Moreover, the timeless problems of human society are unscientific in nature. There is no scientific principle that can give a perfect distribution of rights and responsibilities within the

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citizens of state like Pakistan. Outside politics, truth commands respect and obedience in individual affairs. Science is about quantities that can be measured. It is empiricist in nature but people on the other hand are more than the mechanistic working of a clock. Truth matters to them and science cannot provide ultimate truths about the key questions concerning human beings.

Finally, supporters of science claim that science dispels backward motions in society. It creates a culture of truth seeking and prevent people from living on lies and stories. To this In this regard, the enlightenment is quoted as an example in which philosophers used the scientific method to question everything and come up with innovative solutions to the problems affecting them. To this perspective, on account of the subsequent developments of french revolution must be mentioned. Ultimately, thousands died because once again, the root causes of

their problems were political in nature and technical solutions didn't work.

Summing up, science is a great tool and has a lot to offer to humanity but as for as the central problems of this age are concerned, it is to politics ~~we~~ <sup>that one</sup> must turn.

Politics is about fundamental differences about first principles and these differences are resolved by <sup>making</sup> compromises. Pakistan's

major problems and their root causes are political in nature.

The tendency to frame political problems in technical language is one that has to be spotted because it is ubiquitous.

The positive effects of science can be harnessed by providing an environment in which science works for the people, not ~~for~~ against them, and certainly not for profiteering.