



Does the Use of Models and Theories Bring Us Closer to Truth, or Further Away From Reality?

Models and theories play a central role in how people make sense of the world. They organize complexity into manageable forms, helping explain patterns that would otherwise remain unclear, while inevitably leaving out detail. Within Theory of Knowledge, this leads to an important question: do models and theories move us closer to truth, or do they pull us away from reality through abstraction? By examining the natural sciences and economics, this essay argues that models and theories support understanding when their limits are recognised, yet they can distort reality when they are treated as complete descriptions rather than practical tools.

In the natural sciences, models and theories help scientists work with things they cannot observe directly. Atomic diagrams, climate simulations, and theories such as evolution or relativity give structure to patterns that would otherwise be difficult to explain. The Bohr model of the atom is a clear example. Although it oversimplified how electrons behave, it offered a useful framework that could be tested, challenged, and improved, bringing scientific understanding closer to truth without claiming to represent reality in full.

This points to the way scientific models tend to work as provisional tools, not finished truths. They are useful because they help explain patterns and make predictions, even though they simplify what is actually happening. At the same time, models can encourage misplaced confidence. Climate models, for example, depend on assumptions and chosen variables, and when those limits fade into the background, the models can seem more certain than the evidence allows, pulling attention away from the complexity they are meant to describe.

Even with these risks, the scientific method is built around revision. Models are checked against observation, and theories are modified or abandoned when they no longer hold up. Over time, this process allows models in the natural sciences to guide knowledge closer to truth, even though no single model ever offers a complete picture.

In economics, models and theories play a more contested role. Economic models often rely on assumptions such as rational behavior, perfect information, or stable markets. These assumptions allow economists to construct elegant theories, but they can also strip away key aspects of human behavior. For example, supply-and-demand models explain price movements clearly, yet they struggle to account for emotional decision-making or unequal access to information.



A claim here is that economic models help reveal underlying structures that might otherwise remain hidden. By isolating variables, economists can identify trends and relationships that inform policy decisions. However, a strong counterclaim is that these same simplifications can misrepresent reality. The 2008 financial crisis exposed how reliance on theoretical risk models led institutions to underestimate uncertainty and systemic vulnerability. In this case, models did not bring us closer to truth, but instead masked it.

Unlike the natural sciences, economics lacks controlled experimentation on the same scale. As a result, economic models often gain acceptance through coherence and mathematical elegance rather than direct testing. This increases the risk that theories drift away from lived economic realities, especially when treated as universal truths rather than context-dependent tools.

Placing these two areas of knowledge side by side brings out a key difference. In the natural sciences, models are openly treated as temporary and are continually checked against evidence. Any gap between the model and reality is expected and addressed through revision. In economics, models tend to carry more practical authority, shaping real decisions even though they rest on simplified assumptions, which makes any mismatch between theory and reality far more impactful.

Overall, models and theories are neither guarantees of truth nor obstacles to it. Their effect depends on the way they are handled. Used as adaptable tools that invite testing and revision, they help clarify understanding and steer investigation. Treated as full stand-ins for reality, they can hide complexity and create confidence that the evidence does not fully justify.

In conclusion, models and theories are powerful instruments for knowledge production, but they are not mirrors of reality. In the natural sciences, their strength lies in their ability to evolve alongside evidence. In economics, their danger lies in being mistaken for reality itself. Recognizing the provisional nature of models allows them to bring us closer to truth while maintaining respect for the complexity of the world they attempt to explain.