

Quantum Physics and the Social Sciences: How Physics Concepts Can Be Put to Good Use in the Social Sciences

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ABSTRACT: This talk will discuss how concepts from physics can be used in social science, more specifically in areas such as economics, finance and psychology. The talk will give an overview of four problem areas in the social sciences which can be solved with physics concepts. We start our discussion with the concept of potential function and we show how it can be employed to illustrate basic price equilibrium issues in foundational economics. In our second problem area, we discuss how the heat equation plays a central role in financial option pricing. In our third problem area, we consider a ‘new’ potential function, this time sourced from quantum physics, and we argue how it can play a very useful role in finance. We finish the talk with a fourth problem area, where we shall attempt to demonstrate, how quantum probability can be of great value in better understanding persistent paradoxes occurring in well-known decision making formalisms used in both economics and psychology. The talk will also discuss how I delivered, for several years, the course entitled ‘Quantum Finance and Social Science’ in the Department of Physics at the University of Leicester in the UK. This course dealt exactly with the topics we will consider in this presentation.

ALL ARE WELCOME!