

I INTRODUCTION

The purpose of statistics, like that of geometry or physics, is to describe certain real phenomena. The objects of the real world can never be described in such a complete and exact way that they could form the basis of an exact theory. We have to replace them by some idealized objects, defined explicitly or implicitly by a system of axioms. For instance, in geometry we define the basic notions "point," "straight line," and "plane" implicitly by a system of axioms. They take the place of empirical points, straight lines and planes which are not capable of exact definition. In order to apply the theory to real phenomena, we need some rules for establishing the correspondence between the idealized objects of the theory and those of the real world. These rules will always be somewhat vague and can never form a part of the theory itself.

The purpose of statistics is to describe certain aspects of mass phenomena and repetitive events. The fundamental notion used is that of "probability." In the theory it is defined either explicitly or implicitly by a system of axioms. For instance, Mises¹⁾ defines the probability of an event as the limit of the relative frequency of this event in an infinite sequence of trials satisfying certain conditions. This is an explicit definition of probability. Kolmogoroff²⁾ defines probability as a set function which satisfies a certain system

1) See references 10 and 11

2) See reference 9