simulation is the sample size, n. That done, we can generate each of the y_t, $t = 1, \ldots, n$, by evaluating the right-hand side of the equation n times. For this to be possible, we need to know the value of each variable and each parameter that appears on the right-hand side.

If we suppose that the explanatory variable x_t is exogenous, then we simply take it as given. So if, in the context of the consumption function example, we had data on the disposable income of households in some country every year for a period of n years, we could just use those data. Our simulation would then be specific to the country in question and to the time period of the data. Alternatively, it could be that we or some other econometricians had previously specified another model, for the explanatory variable this time, and we could then use simulated data provided by that model.

Besides the explanatory variable, the other elements of the right-hand side of (1.01) are the parameters, β_1 and β_2, and the error term u_t. The key feature of the parameters is that we do not know their true values. We will have more to say about this point in Chapter 3, when we define the twin concepts of models and data-generating processes. However, for purposes of simulation, we could use either values suggested by economic theory or values obtained by estimating the model. Evidently, the simulation results will depend on precisely what values we use.

Unlike the parameters, the error terms cannot be taken as given; instead, we wish to treat them as random. Luckily, it is easy to use a computer to generate "random" numbers by using a program called a **random number generator**; we will discuss these programs in Chapter 4. The "random" numbers generated by computers are not random according to some meanings of the word. For instance, a computer can be made to spit out exactly the same sequence of supposedly random numbers more than once. In addition, a digital computer is a perfectly deterministic device. Therefore, if random means the opposite of deterministic, only computers that are not functioning properly would be capable of generating truly random numbers. Because of this, some people prefer to speak of computer-generated random numbers as **pseudo-random**. However, for the purposes of simulations, the numbers computers provide have all the properties of random numbers that we need, and so we will call them simply random rather than pseudo-random.

Computer-generated random numbers are mutually independent **drawings**, or realizations, from specific probability distributions, usually the uniform $\mathrm{U}(0,1)$ distribution or the standard normal distribution, both of which were defined in Section 1.2. Of course, techniques exist for generating drawings from many other distributions as well, as do techniques for generating drawings that are not independent. For the moment, the essential point is that we must always specify the probability distribution of the random numbers we use in a simulation. It is important to note that specifying the expectation of a distribution, or even the expectation conditional on some other variables, is not enough to specify the distribution in full.