hand, it can yield a much greater understanding on which to base policies for improving fertility control effectiveness. Ideally, of course, both a macro and a micro estimate of FCE should be available for any population, and the two estimates should agree.

Assessment of fertility control methods in use should begin with the recognition that even the most primitive human populations practice a number of different methods of controlling their fertility (Himes 1936, Nag 1968, Omran 1971). At least three of these primitive methods have an intrinsic effectiveness of 100 percent, namely, infanticide, abortion, and abstention from sexual intercourse. There is ample evidence that each method has been or is being used to a significant extent by human populations.

> Infanticide was an almost universal custom from very early times and is still quite common in many parts of the world. . . . Indeed, it is such a common practice that one notices its absence rather than its presence when reading the accounts of explorers and anthropologists. . . . In Europe it was not until well into the Middle Ages that infanticide came to be looked upon as a crime. [Thompson 1953, pp. 10–11]
>
> It is the author's opinion that when developing societies are highly motivated to accelerate their transition from high to low fertility, induced abortion becomes such a popular method of fertility control that it becomes a kind of epidemic. . . . [In Japan] following World War II, abortions reached the high proportion of 716.3 per 1000 live births. . . . According to Chilean hospital data for the 24 years ending in 1960, the number of deliveries increased by 1.8 times, whereas the corresponding figure for postabortion hospital admissions increase was 4.4. . . . In Turkey, a study showed that 39.4 percent of the 496 women coming for contraceptive advice in Ankara Maternity Hospital had had induced abortions at some time in their past. . . . Kenya statistics for 1964 indicate that the number of deaths from abortion was almost half that attributed to malaria. [Omran 1971]
>
> Ireland is the best contemporary example of abstinence—achieved in this instance through not marrying. According to the 1951 census, 31 percent of the men and 26 percent of the women of age 50 have never married. Average age at first marriage was 31 years for grooms and 27 for brides. [Thomlinson 1965, p. 196]

Although nearly every population seems to know about these and other theoretically effective methods of fertility control, in practice very few populations use these methods to control their fertility with theoretical 100 percent efficiency. In fact, any fertility control method can be assigned two effectiveness ratings: an *intrinsic* effectiveness that pertains when it is used universally, consistently, and correctly; and a *practical* effectiveness or use-effectiveness that is attained by an actual population containing individuals with varying degrees of motivation, will power, and understanding. The range of actual use-effectiveness of different contraceptive methods is illustrated by Figure 2-73.

The difference between intrinsic effectiveness and use-effectiveness of fertility control methods can be understood by taking into account not only the intrinsic effectiveness of each method but also the perceived cost of using it. No fertility control method can be practiced without some cost, where "cost" refers not only to monetary expense but also to social or psychological costs, such as embarrassment, inconvenience, physical risk, or fear of social reprisal. An intrinsically effective method, such as abortion or abstinence, can be ineffective in a real population because its high cost prohibits consistent use.

Cost is here, as always, a relative concept. The perceived cost of a given fertility control method can vary greatly from society to society. For example, an abortion in Romania could be legally obtained in any hospital or outpatient clinic for 3 dollars from 1957 to 1966. The procedure took only about two hours and was medically safe and governmentally approved (David and Wright 1971). Widespread use of abortion by the Romanian population during this period indicated that the perceived cost of this method was relatively low (though not, of course, zero). In contrast, in the United States abortion laws until recently have been overwhelmingly restrictive, the cost of a hospital abortion has been 500 dollars or more, the health risk of an illegal abortion has been high, and the procedure has been socially and officially disapproved. Although many abortions nevertheless took place under these circumstances, the perceived cost was clearly higher than in Romania and the frequency of use was lower.

The costs of fertility control not only vary from society to society; they also vary in a single society over time. Since 1966, abortion has been illegal in Romania and has become more socially accepted (Blake 1971) and partially legalized in the United States.* One might expect the use-effectiveness of abortion to decrease in Romania and to increase in the United States in the future, although its intrinsic effectiveness is unchanged.

For a given society at a given time, the spectrum of available birth control methods can be evaluated in terms of the intrinsic effectiveness and apparent cost of each method to give a set of cost-effectiveness curves, as shown in Figure 2-74 for a hypothetical Western industrialized population. Maximum and minimum effectiveness figures for each method are taken from Figure 2-73. Apparent costs were assigned on a scale from 0 to 10, with the cost of no control defined as 0 and the cost of infanticide (unacceptable in this society) as 10. For several methods, cost-effectiveness must be defined as a line rather than a point, since more effective use entails higher cost. The classic example of such a method is rhythm, which becomes more effective and more psychologically costly as it approaches complete abstinence.

A cost-effectiveness curve such as that shown in Figure 2-74 is not sufficient to define the aggregate fertility control effectiveness of a population, since the cost of taking any action is meaningful only in comparison with the cost of *not* taking that action. In the case of fertility control, the perceived cost of using any preventive measure must be weighed against the perceived cost of producing an unwanted child, with cost again interpreted in the broadest sense of the word. Clearly, no method will be used unless the perceived net cost of producing a child approximates the cost of using that method. Thus there are two subjective and difficult-to-measure quantities that must be understood before the FCE of a population can be estimated by the

*In early 1973 legal restrictions on abortions during the first trimester of pregnancy were declared unconstitutional by the U.S. Supreme Court.