**Chapter 20 Summary**

The traditional regression methodology concentrates on estimating the conditional mean value of the regressand given the values of the regressors. But this emphasis on estimating the conditional mean value may not be adequate in data that are highly skewed, come from non-normal population, or have a large number of outlying observations. In such cases, which may be common in many fields of social science research, it is important to look at the other features of the probability distribution, not just the mean. This is what the quantile regression (QR) methodology does.

In QR, we can look at different segments (quantiles) of the data and see if the response of the regressand to regressors differs from quantile to quantile. If it does, the traditional regression methodology may not do justice to the data. In this chapter, we have tried to show this with a concrete example.

Using hourly wage data for 1,289 workers from the 1995 Current Population Survey (CPS), we estimated a wage function, which included gender, race, union status, education, and experience as regressors. We first showed the results of the traditional OLS regression. Then we estimated quantile regressions for the 25th, 50th (median) and 75th quantiles. A comparison of these three quantile regressions with the OLS regression showed that there are statistically significant differences in the regression results. Not only do the three QRs differ from the OLS (mean) regression, but there are statistically significant differences in the coefficients of the three QRs, as shown in Table 20.4. We showed this graphically as well as analytically.

The results of the quantile regressions in our example show clearly that it is important to examine not only the mean value of the distribution, but also other features of the distribution.

Although we have used *Stata* 12 in this chapter, we showed that the results obtained from *Eviews* 8 are quite similar to the *Stata* results; the difference is mainly in the format in which they are presented.

Our emphasis in this chapter has been on the basics of QR. We have not discussed the mathematics behind various computations, for which the reader may consult the references. It may be added that research in QR is evolving. For example, we have discussed QR in the context of continuous random variables because analytical solutions to discrete data have not been easy to come by. However, some attempts have been made to model count data in the QR framework and some user-developed programs to estimate count quantile regression (CQR) have been incorporated in *Stata*.