

FIG. 3. One y and one x outlier.

Although our results are based on a limited number of data sets, we conclude that the Welsh trimmed mean should be used with caution in practice.

REFERENCES

- BICKEL, P. J. (1973). On some analogues to linear combinations of order statistics in the linear model. *Ann. Statist.* **1** 597–616.
- DE JONGH, P. J. and DE WET, T. (1985). Trimmed means and bounded influence estimators for the parameters of the AR(1) process. *Comm. Statist. A—Theory Methods* **14** 1361–1375.
- DENBY, L. and LARSEN, W. A. (1977). Robust regression estimators compared via Monte Carlo. *Comm. Statist. Theory Methods* **6** 335–362.
- KOENKER, R. W. and BASSETT, G. W. (1978). Regression quantiles. *Econometrica* **46** 33–50.
- KRASKER, W. S. and WELSCH, R. E. (1982). Efficient bounded-influence regression estimation. *J. Amer. Statist. Assoc.* **77** 595–604.
- RUPPERT, D. and CARROLL, R. J. (1980). Trimmed least squares estimation in the linear model. *J. Amer. Statist. Assoc.* **75** 828–838.

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1. Introduction. Alan Welsh has resolved an intriguing puzzle posed by Ruppert and Carroll (1980) in their influential study of analogues of the trimmed mean for the linear regression model. They showed that an estimator with “appropriate” asymptotic behavior could be constructed based on “regression quantiles,” and they also showed that naive trimming based on residuals from a preliminary fit of the model had a considerably different, and far less satisfactory, asymptotic theory. Welsh has now shown that a less naive, but still