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In this paper we consider partially linear additive models where the predictors in the parametric and in the nonparametric parts are contaminated by measurement errors. We propose an estimator of the parametric part and show that it achieves $\sqrt{n}$-consistency in a certain range of the smoothness of the measurement errors in the nonparametric part. We also derive the convergence rate of the parametric estimator in case the smoothness of the measurement errors is off the range. Furthermore, we suggest an estimator of the additive function in the nonparametric part that achieves the optimal one-dimensional convergence rate in nonparametric deconvolution problems. We conducted a simulation study that confirms our theoretical findings.