

# Accepted Manuscript

Measurement errors in quantile regression models

Sergio Firpo, Antonio F. Galvao, Suyong Song

PII: S0304-4076(17)30020-9

DOI: <http://dx.doi.org/10.1016/j.jeconom.2017.02.002>

Reference: ECONOM 4348

To appear in: *Journal of Econometrics*

Received date: 1 July 2015

Revised date: 24 September 2016

Accepted date: 6 February 2017



Please cite this article as: Firpo, S., et al., Measurement errors in quantile regression models. *Journal of Econometrics* (2017), <http://dx.doi.org/10.1016/j.jeconom.2017.02.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Measurement Errors in Quantile Regression Models\*

Sergio Firpo<sup>†</sup>      Antonio F. Galvao<sup>‡</sup>      Suyong Song<sup>§</sup>

February 10, 2017

**Abstract**

This paper develops estimation and inference for quantile regression models with measurement errors. We propose an easily-implementable semiparametric two-step estimator when repeated measures for the covariates are available. Building on recent theory on Z-estimation with infinite-dimensional parameters, consistency and asymptotic normality of the proposed estimator are established. We also develop statistical inference procedures and show the validity of a bootstrap approach to implement the methods in practice. Monte Carlo simulations assess the finite-sample performance of the proposed methods. We apply the methods to the investment equation model using a firm-level data with repeated measures of investment demand, Tobin's  $q$ . We document strong heterogeneity in the sensitivity of investment to Tobin's  $q$  and cash flow across the conditional distribution of investment. The cash flow sensitivity is relatively larger at the lower part of the distribution, providing evidence that these firms are more exposed to and dependent on fluctuations in internal finance.

Key Words: Quantile regression; measurement errors, investment equation

JEL Classification: C14, C23, G31

---

\*The authors would like to express their appreciation to Stephane Bonhomme, Tim Conley, Silvia Goncalves, Stefan Hoderlein, Roger Koenker, Arthur Lewbel, Salvador Navarro, Alex Poirier, Yuya Sasaki, Susanne Schennach, Liang Wang, Zhijie Xiao, and seminar participants at Boston College, Syracuse University, University of Arizona, University of Western Ontario, 2015 Midwest Econometrics Group, 2015 CMStatistics, 2016 Latin American Workshop in Econometrics of the Econometric Society, 2016 Meeting of the Brazilian Econometric Society, and 2016 North America Summer Meeting of the Econometric Society for helpful comments and discussions. We also would like to thank Jianqing Fan, an associate editor, and two anonymous referees for their constructive comments and suggestions. All the remaining errors are ours.

<sup>†</sup>Inspere, Rua Quata 300, Sao Paulo, SP 04546-042. E-mail: [firpo@insper.edu.br](mailto:firpo@insper.edu.br)

<sup>‡</sup>Department of Economics, University of Iowa, W284 Pappajohn Business Building, 21 E. Market Street, Iowa City, IA 52242. E-mail: [antonio-galvao@uiowa.edu](mailto:antonio-galvao@uiowa.edu)

<sup>§</sup>Department of Economics, University of Iowa, W360 Pappajohn Business Building, 21 E. Market Street, Iowa City, IA 52242. E-mail: [suyong-song@uiowa.edu](mailto:suyong-song@uiowa.edu)

Download English Version:

<https://daneshyari.com/en/article/5095564>

Download Persian Version:

<https://daneshyari.com/article/5095564>

[Daneshyari.com](https://daneshyari.com)