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# Nonparametric Heteroskedasticity in Persistent Panel Processes: An Application to Earnings Dynamics\*

Irene Botosaru<sup>†</sup> and Yuya Sasaki<sup>‡</sup>

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## Abstract

This paper considers a dynamic panel model where a latent state variable follows a unit root process with nonparametric heteroskedasticity. We develop constructive nonparametric identification and estimation of the skedastic function. Applying this method to the Panel Survey of Income Dynamics (PSID) in the framework of earnings dynamics, we found that workers with lower pre-recession permanent earnings had higher earnings risk during the three most recent recessions.

**Keywords:** conditional heteroskedasticity, nonparametric identification, earnings risk

**JEL Code:** C14, C23, E24

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