LAWS OF LARGE NUMBERS FOR INDEPENDENT PARETO RANDOM VARIABLES WITH INFINITE MEAN

TOSHIO NAKATA
University of Teacher Education Fukuoka, Munakata, Japan
e-mail: nakata@fukuoka-edu.ac.jp

This talk is based on [4] and [5]. It explores weighted laws of large numbers for independent random variables with infinite mean. The prototype of this study is a weak law for i.i.d. random variables whose common distribution is used in the St. Petersburg game, which was investigated by Feller [3]. Adler [1] studied a Pareto distribution with a simple parameter to clearly understand weighted laws of large numbers for a non-identically distributed case. He showed the weighted weak law, which cannot be strengthened to a strong law just like the distribution of the St. Petersburg game. This result is naturally extended by [4], so that we can deal with a wider class.

In [5] we give some weighted weak laws, which can be strengthened to strong laws by carefully examining parameters of the Pareto distribution. Moreover, we demonstrate a simple example of the weighted strong law applying the algorithm of Adler and Wittmann [2].

Acknowledgement This work was supported by JSPS KAKENHI Grant Number 15K05001.

References