

Some Notes On Improvement Of Convergence By Regular Matrices

Ants Aasma

Department of Economics, Tallinn University of Technology,

Kopli 101, 11712 Tallinn, Estonia

ants.aasma@tseba.ttu.ee

Abstract

We consider some aspects of convergence acceleration by regular matrices $M = (m_{nk})$ with real or complex entries. Classically a matrix M is called accelerating the convergence if the relation

$$\frac{|\sum_k m_{nk} x_k - \lim_n \sum_k m_{nk} x_k|}{|x_n - \lim_n x_n|} \rightarrow 0 \text{ for } n \rightarrow \infty$$

holds for every convergent sequence $x = (x_n)$. Besides the classical concept of comparing and estimating the speeds of convergence of sequences and series we use weakened criterion, called improvement of convergence ([1]). As an application regular matrices are used for increasing the order of approximation of Fourier expansions and Zygmund means of Fourier expansions in certain Banach spaces.

References

- [1] Aasma, A. On the acceleration of convergence by regular matrix methods. *Proc. Estonian Acad. Sci.*, 2008, **57**, 3-17.