

**Yengibarian, Norair B.**

**Renewal equation on the whole line.** (English) Zbl 0997.60096  
*Stochastic Processes Appl.* 85, No. 2, 237-247 (2000).

The paper discusses the renewal equation on the whole line and proves existence of its solution provided a non-zero absolutely continuous component of a probability distribution function going in the equation. Of course, the distribution must possess non-zero (possibly infinite) mean. The presented proof is based on the theory of Volterra integral equations.

Reviewer: Petr Lachout (Praha)

**MSC:**

**60K05** Renewal theory  
**34A12** Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations  
**45D05** Volterra integral equations

Cited in **1** Review  
Cited in **2** Documents

**Keywords:**

renewal equation on the whole line; complete form of Karlin's theorem; Volterra integral equations

**Full Text:** [DOI](#)

**References:**

- [1] Arabajian, L.G., Yengibarian, N.B., 1987. Convolution equations and nonlinear functional equations. *J. Soviet Math.* 36, 2.
- [2] Arabajian, L.G., 1987. On one integral equation of Radiative transfer in non-homogeneous media. *Differentsial'nye Uravneniya* 23(9), 1618-1622 (in Russian).
- [3] Blackwell, D., Extension of a renewal theorem, *Pacific J. math.*, 3, 315-320, (1953) · [Zbl 0052.14104](#)
- [4] Breiman, L., 1968. *Probability Theory*. Addison-Wesley, Reading, MA. · [Zbl 0174.48801](#)
- [5] Feller, W., 1971. *An Introduction to Probability Theory and its Applications*, Vol. II. Wiley, New York. · [Zbl 0219.60003](#)
- [6] Gevorgian, G.G.; Yengibarian, N.B., New theorems for the renewal integral equation., *J. contemp. math. anal.*, 32, 1, 2-16, (1997) · [Zbl 0894.45003](#)
- [7] Engibaryan, N.B.; Arutyunyan, A.A., Integral equations on the half-line with difference kernels and nonlinear functional equations, *Math. USSR sb.*, 26, 1, 31-54, (1975) · [Zbl 0333.45005](#)
- [8] Engibaryan, N.B., Convolution equations containing singular probability distributions, *Izv. math.*, 60, 2, 251-279, (1996) · [Zbl 0882.45002](#)
- [9] Engibaryan, N.B., Renewal equations on the semi-axis, *Izv. math.*, 63, 1, 57-71, (1999) · [Zbl 0937.60083](#)
- [10] Lalley, S.P., Conditional Markov renewal theory, *Ann. probab.*, 12, 1113-1148, (1984) · [Zbl 0551.60094](#)
- [11] Revuz, D., 1975. *Markov Chains*. North-Holland, Amsterdam.
- [12] Rudin, W., 1973. *Functional Analysis*. McGraw-Hill Book Company, New York. · [Zbl 0253.46001](#)
- [13] Stone, C.J., On characteristic functions and renewal theory, *Trans. amer. math. soc.*, 120, 327-342, (1965) · [Zbl 0133.40504](#)
- [14] Stone, C.J., On absolutely continuous components and renewal theory, *Ann. math. statist.*, 37, 271-275, (1966) · [Zbl 0147.16205](#)

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