

Slutsky, Evgeny Evgenievich | Encyclopedia.com

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(*b.* Novoe, Yaroslavskaya guberniya, Russia, 19 April 1880; *d.* Moscow, U.S.S.R., 10 March 1948)

mathematics, statistics.

Slutsky's father was an instructor at a teachers' seminary and, from 1886, director of a school in Zhitomir. After graduating from a classical Gymnasium, Slutsky enrolled in the mathematics department of Kiev University in 1899. He participated in student disturbances there and consequently was inducted into the army in 1901; readmitted to the university shortly thereafter, he was again expelled in 1902. He then studied for three years at the Munich Polytechnikum.

In 1905 Slutsky received permission to continue his studies in Kiev. His interest in political economy led him to enroll at the Faculty of Law, from which he graduated in 1911 with a gold medal. From 1913 he taught at the Kiev Institute of Commerce, and from 1926 he worked in Moscow in the government statistical offices. He began teaching at Moscow University in 1934 and, in 1938, at the institute of Mathematics of the Academy of Sciences of the U.S.S.R.

Slutsky belonged to the generation of Russian statisticians that developed under the influence of Pearson and his school. His interest in both practical statistical problems (economics and later the natural sciences) and their theoretical background led Slutsky into purely mathematical studies, which although sometimes not fully extended in their generality, nevertheless contained fundamental new ideas.

A pioneer of the theory of random functions, Slutsky generalized or introduced stochastic concepts of limits, derivative, and integral (1925–1928), and obtained the conditions of measurability of functions (1937). In 1927 he discovered that multiple moving averages obtained from a series of independent random variables generate series close to periodic ones; this finding stimulated the creation of the theory of stationary stochastic processes and constituted an important contribution to business cycle theory. An important group of Slutsky's papers is devoted to the classical theory of correlations of related series for a limited number of trials. In 1915 he contributed to economics what is now known as the fundamental equation of value theory, which partitions the effect of a change in the price of a commodity into the income and substitution effects.

Slutsky's applied work included studies of the pricing of grain, the mean density of population, the periodicity of solar activity (using information on aurorae boreales from 500 B.C.), and statistical studies of chromosomes.

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Slutsky's basic writings were collected in *Izbrannye trudy. Teoria veroyatnostey i matematicheskaya statistika* ("Selected Works. Probability Theory and Mathematical Statistics"; Moscow, 1960). Separately published works include *Teoria korrelyatsii i elementy uchenia of krivyykh raspredelenia* ("Correlation Theory and Elements of the Theory of Distribution Curves"; Kiev, 1912); *Ser Vliiam Petty, Kratky ocherk ego ekonomicheskikh vozzreny* ("Sir William Petty. A Short Essay on His Economic Views"; Kiev, 1914); *Tablitsy dlya vychislenia nepolnoy Γ -funktsii i funktsii veroyatnosti X^2* ("Tables for the Calculation of an Incomplete Γ -Function and the Probability Function X^2 "; Moscow—Leningrad, 1950); and "Sulla teoria del bilancio del consumatore." in *Giornale degli economisti*, **51** (1915). 1–26, trans. by American Economic Association, as "On the Theory of the Budget of the Consumer," in *Readings in Price Theory* (Chicago, 1952), 27–56,

On Slutsky and his work, see A. N. Kolmogorov, in *Uspekhi matematicheskikh nauk*, **3**, no. 4 (July—Aug. 1948), 143–151, with bibliography of 47 works by Slutsky (1912–1946); and N. V. Smirnov's obituary in *Izvestiya Akademii nauk SSSR, Seria mat.*, **12** (1948), 417–420.

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