

ABSTRAK

Surya Alenta Nababan, NIM 4211230017 (2025). Pemodelan Regresi Nonparametrik *Spline Truncated* Terhadap Prevalensi Stunting di Sumatera Utara

Penelitian ini bertujuan memodelkan prevalensi stunting di Sumatera Utara menggunakan regresi nonparametrik *spline truncated* untuk menggambarkan hubungan nonlinier antar faktor penyebab stunting. Metode yang digunakan dalam pemilihan titik knot optimal adalah *Generalized Cross Validation (GCV)* dan untuk estimasi parameter dilakukan dengan menggunakan *Ordinary Least Squares (OLS)*. Hasil penelitian menunjukkan bahwa model regresi nonparametrik *spline truncated* terbaik dalam memodelkan prevalensi stunting di Sumatera Utara adalah dengan tiga titik knot. Model yang dihasilkan memiliki nilai GCV yang paling minimum sebesar 56.4289 dengan nilai R^2 sebesar 94,36%. Berdasarkan hasil uji parameter secara simultan diperoleh bahwa seluruh variabel yang digunakan yakni Presentase Rumah Tangga dengan Sanitasi Layak, Presentase Rumah Tangga dengan Sumber Air Minum Layak, Presentase Bayi diberi ASI Eksklusif, Presentase Penduduk Miskin, dan Rata-rata Lama Sekolah berpengaruh secara signifikan terhadap Prevalensi Stunting di Sumatera Utara.

Kata kunci: *Stunting*, Regresi Nonparametrik, *Spline Truncated*, *Generalized Cross Validation*, Sumatera Utara.

ASBTRACT

Surya Alenta Nababan, NIM 4211230017 (2025). *Modeling Stunting Prevalence in North Sumatera Using Nonparametric Truncated Spline Regression.*

This study aims to model the prevalence of stunting in North Sumatra using truncated spline nonparametric regression to describe the nonlinear relationship between factors causing stunting. The method used in selecting the optimal knot point is Generalized Cross Validation (GCV) and for parameter estimation is done using Ordinary Least Squares (OLS). The results of the study indicate that the best nonparametric spline truncated regression model in modeling the prevalence of stunting in North Sumatra is with three knot points. The resulting model has the minimum GCV value of 56.4289 with an R^2 value of 94.36%. Based on the results of the parameter test simultaneously obtained that all variables used namely the Percentage of Households with Proper Sanitation, Percentage of Households with Proper Drinking Water Sources, Percentage of Infants Exclusively Breastfed, Percentage of Poor Population, and Average Length of Schooling have a significant effect on the Prevalence of Stunting in North Sumatra.

Keywords: Stunting, Nonparametric Regression, Truncated Spline, Generalized Cross Validation, North Sumatra.

