

DAFTAR PUSTAKA

- Adisantoso, Julio. 2010. *Menentukan Parameter Pemulus pada Model Regresi Smoothing Spline*, G16109011/STK,2010.
- Budiantara, I.N. 1999. *Estimator Spline Terbobot Dalam Regresi Semiparametrik*.
Majalah Ilmu Pengetahuan dan Teknologi , 10, 103-109.
- Budiantara, I.N. 2006. *Regresi Nonparametrik Dalam Statistika*. Makalah Pembicara Utama pada Seminar Nasional Matematika, Jurusan Matematika, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Makassar (UNM), Makassar.
- Budiantara,I.N.2009. *Spline dalam regresi nonparametric dan semiparametrik: Sebuah Pemodelan Statistika Masa Kini dan Masa Mendatang*. Pidato pengukuhan untuk jabatan guru besar dalam bidang Matematika Statistika dan Probabilitas, Jurusan Statistika FMIPA, ITS, Surabaya.
- Budiantara, I.N, dan Purnomo, J.D.T.2010. *Model Regresi Nonparametrik Spline Terbobot dan Aplikasinya Dalam Merancang KMS*. Laporan Penelitian Guru Besar, Jurusan Statistika FMIPA, ITS, Surabaya.
- Chamidah, N., 2009, *Deteksi Dini Gangguan Pertumbuhan dan Perkembangan Anak*, Jurnal Pendidikan Khusus, 5(2): 83-93.
- Chamidah, N., Budiantara, I.N., Sunaryo, S., dan Ismaini, Z. 2012,*Designing of Child Growth Chart Based on Multi Response Local Polynomial Modeling*,Journal of Mathematics and Statistics, 8 (3), 342-347
- Chamidah, N., Saifuddin T., 2013. *Estimation of children growth curve based on kernel smoothing in multi-response nonparametric regression*, Applied Mathematical Sciences 7 (37), 1839-1847
- Claeskens, G., Kribovokova, T., dan Opsomer, J.D.2009.*Asymptotic Properties of Penalized Spline Estimators*.Biometrik, 96(3), 529-544.
- Eubank R.L. 1988. *Spline smoothing and Nonparametrik Regression*. Marcel Dekker, New York.
- R.L., 1999, *Nonparametric Regression and Spline Smoothing 2nd Edition*, Marcel Dekker, New York.



- Hardle, W. 1990. *Applied Nonparametric Regression*. Cambridge: Cambridge University Press.
- Herawati, N. 2011. *Regresi spline untuk Pemodelan Bidang Kesehatan : Studi tentang Knot dan Selang Kepercayaan*, Jurusan Matematika FMIPA Universitas Hasanuddin.
- Insani, W.N., Latifah, T.N., 2015, *Status Gizi Anak dengan Pertumbuhan dan Perkembangan Anak Usia 0-2 Tahun di Wilayah Kerja Puskesmas Tomo Kabupaten Sumedang Tahun 2013*, Indonesian Journal of Education and Midwifery Care, **2**(1).
- Islamiyati, A., Fatmawati & Chamidah, N. 2017. *Fungsi Goodness of fit dalam Kriteria Penalized Spline pada Estimasi Regresi Nonparametrik Birespon untuk Data Longitudinal*. Proseding Seminar Nasional Matematika dan Aplikasinya. UNAIR Surabaya.
- Islamiyati, A., Fatmawati & Chamidah, N. 2018. *Estimation of Covariance Matrix on Bi-Response Longitudinal Data Analysis with Penalized Spline Regression*. J. Phys.: Conf. Ser. **979** 012093.
- Islamiyati, A., Fatmawati & Chamidah, N. 2019. *Ability of covariance matrix in bi-response multi-predictor penalized spline model through longitudinal data simulation*. International Journal of Academic and Applied Research, 3(3) : 8-11.
- Kementerian Kesehatan Indonesia. 2019. *Hasil Utama Riskesdas 2018*. Diakses pada 20 Agustus 2019 : depkes.go.id
- Narendra, M., Sularyo, T., Suyitno, H., & Ranuh, I. 2002. *Tumbuh Kembang Anak dan Remaja*. Jakarta: CV. Sagung Seto.
- Subanar, dan Budiantara, I.N. 1999. *Weighted Spline Estimator in a Partially Linear Models, Proceeding of the SEAMS-GMU*. International Conference 1999 on Mathematics and Its Applications , 61-70
- Supariasa, I.D.N., Bakri, B., dan Fajar, I., 2002, *Penilaian Status Gizi*, Penerbit Buku Kedokteran EGC, Jakarta.
- to.2010. *Deteksi Dini Tumbuh Kembang Anak / Balita Melalui KMS*. Diakses pada 16 Oktober 2019.



- Wahba,G. 1990. *Spline Models For Observation Data*, SIAM Pennsylvania.
- Wand, M.P., 2000, *A Comparison of Regression Spline Smoothing Procedures*, Computational Statistics, **15**(4): 443–462.
- Wicaksono,A. 2011. *Model Spline Terbobot Untuk Merancang Kartu Menuju Sehat (KMS) Provinsi Sulawesi Selatan*. Skripsi , Institut Teknologi Sepuluh November.
- Winarti and Sony, S., 2010. *Pendekatan Regresi Semiparametrik Spline (Pada data nilai Ujian Nasional siswa SMKN 1 Nguling Pasuruan)*. Jurnal Sains dan Seni Pomits, **3**(2): 194-199.
- Wu, H., dan Zhang, J.T. 2006.*Nonparametrik Regression Methods for Longitudinal Data Analysis*. John Wiley & Sons, New Jersey.



LAMPIRAN



Lampiran

Lampiran 1. Nilai Persentil Berat Badan Balita Menurut Umur

Balita Laki-Laki

Umur	P3	P15	P50	P85	P97	Jumlah
0	3.10	3.14	3.45	4.00	4.00	10
1	4.42	4.48	4.90	5.20	5.20	6
2	3.31	4.01	4.44	5.07	5.61	10
3	5.00	5.01	5.55	6.54	6.87	12
4	5.02	6.07	6.10	6.97	7.12	22
5	5.42	6.03	7.08	7.62	7.90	14
6	6.04	6.66	7.09	8.02	8.07	19
7	7.09	7.20	7.50	8.85	9.00	13
8	6.38	6.82	7.08	8.04	8.07	15
9	7.03	7.78	8.05	9.60	10.00	20
10	6.50	8.05	8.25	8.97	9.40	8
11	8.50	8.52	9.17	10.40	11.90	8
12	8.44	8.63	9.60	10.00	10.83	8
13	7.32	8.46	9.50	16.25	18.00	10
14	7.50	9.08	9.50	9.99	10.00	8
15	8.03	8.05	9.00	10.24	11.25	7
16	8.40	9.01	10.30	11.26	11.50	13
17	8.03	8.04	9.75	10.22	11.75	24
18	9.17	10.17	10.80	11.49	12.00	19
19	10.23	10.57	10.80	11.57	12.04	12
20	9.58	10.04	10.95	12.04	15.00	20
21	10.50	10.66	11.10	12.06	12.30	13
22	9.69	10.50	11.07	11.95	12.56	16
23	10.09	10.30	11.00	11.25	12.14	11
24	9.84	9.98	10.10	11.26	11.63	13
25	9.81	11.87	12.60	14.78	15.20	10
26	10.01	10.53	11.22	12.28	13.40	12
27	11.09	11.45	12.00	12.61	13.40	7
28	9.58	10.97	12.00	12.60	13.64	19
29	11.50	11.51	12.20	13.00	14.43	8
30	10.53	12.06	12.50	13.94	14.00	9
31	11.63	11.81	12.00	12.50	13.23	10
32	11.01	11.10	12.00	12.48	13.20	15
33	10.66	12.98	14.00	14.23	14.45	7
34	12.56	13.58	14.10	14.70	15.42	6
35	10.30	11.25	13.30	13.58	14.66	9
36	12.08	12.12	12.30	13.94	15.08	10
37	12.02	12.40	13.26	15.33	15.57	10



38	12.25	12.70	13.50	14.25	14.85	11
39	11.41	12.56	13.20	14.40	15.26	9
40	11.31	12.77	14.50	16.76	17.02	11
41	11.31	12.42	14.01	15.07	15.47	10
42	12.84	12.98	13.20	13.65	14.73	7
43	12.12	12.51	12.70	14.00	15.19	8
44	15.69	16.04	17.05	18.07	18.41	2
45	13.23	14.12	14.65	15.10	18.50	8
46	14.10	14.43	14.90	17.90	19.58	5
47	13.34	14.50	14.85	18.00	19.03	8
48	12.65	14.51	15.10	18.20	20.71	11
49	14.28	15.12	16.00	18.97	20.84	9
50	12.36	13.59	15.00	16.33	16.87	6
51	14.02	14.12	15.50	16.00	16.76	9
52	13.51	15.05	15.06	16.41	19.16	9
53	15.22	15.29	17.10	19.13	19.43	7
54	16.59	16.95	17.50	18.22	19.72	7
55	15.20	15.58	15.90	17.94	19.96	13
56	14.38	15.77	17.25	19.48	20.76	8
57	12.55	14.53	17.50	18.98	19.40	9
58	16.61	17.04	18.50	19.42	19.56	7
59	16.50	16.50	17.40	19.18	19.36	6
60	17.22	17.69	20.25	23.15	23.83	4

Balita Perempuan

Umur	P3	P15	P50	P85	P97	Jumlah
0	1.795	2.29	2.9	3	3.6	14
1	2.335	2.875	3.75	3.965	4.073	4
2	3.05	3.16	4.04	4.416	4.5	9
3	3.4977	4.568	5	5.096	5.4	13
4	4.04	4.6	6.005	6.05	6.071	10
5	4.704	5.152	6	6.097	6.458	15
6	5.021	5.73	6.09	6.52	6.9072	13
7	5.0308	5.92	6.8	7.004	7.0712	13
8	5.0192	5.084	6.2	7.816	8.0352	9
9	5.18	6.66	7.08	7.846	8.036	17
10	6.168	7.04	7.2	7.7	7.9496	13
11	6.297	6.965	7.19	7.942	8.1406	12
12	6.626	7.13	7.5	8.209	9.6418	7
13	7.006	7.41	7.95	8.8	8.947	18
14	7.012	7.06	8.2	8.7	8.7	6
15	6.4674	8.005	8.5	8.795	9.0133	8
16	7.26	7.6	8.3	9.01	9.842	21



17	6.2754	7.374	8.6	9.019	9.5926	15
18	8.0264	8.223	9.2	9.74	10.0134	12
19	7.4112	8	9	9.52	9.664	13
20	8.0315	8.32	9.35	9.7	10.06	22
21	8.052	8.7	9.6	10	10.04	21
22	7.2712	8.76	9.8	10.27	10.3	15
23	7.3592	8.0705	9.45	10.6565	11.0319	10
24	7.2943	8.09	8.7	9.8445	10.0373	10
25	7.56	9.264	10.5	11.1	11.404	9
26	9.15	9.5	10	10.4	10.47	11
27	9.1025	9.315	9.7	10.585	10.679	8
28	8.485	9.0585	9.9	10.7	10.886	20
29	9.4083	10.095	10.7	11.0235	12.2978	14
30	7.7451	10.0405	10.85	11.165	11.419	10
31	8.532	10.26	11.1	11.5	11.5	7
32	8.7468	8.934	9.2	10.94	10.988	5
33	10.048	10.736	11.1	11.74	11.964	13
34	9.465	9.93	11.45	12.0105	12.03	12
35	9.4136	10.092	11.04	12	12	9
36	9.799	10.05	10.4	11.4	12.3	11
37	9.814	10.565	11.6	12.25	12.5	11
38	9.866	10.65	12.03	13.025	14.6834	12
39	10.359	11.074	11.3	12	13.4673	10
40	10.3	11.15	12.8	13	13.14	11
41	10.048	10.736	12.2	13.042	14.01	13
42	11.59	11.95	12.2	12.3	12.3	7
43	9.754	9.97	11.5	12.01	12.01	6
44	10.476	11.08	13.15	14.74	15.5	14
45	11	11.3	13.02	13.54	13.9344	9
46	11.133	12.405	13.55	14.05	14.05	12
47	11.223	11.993	12.7	14.02	14.164	7
48	12.047	12.091	14	14.51	15.0046	19
49	11.385	12.151	13.815	14.195	14.8873	8
50	11.18	11.9	12.7	13.43	13.646	7
51	11.592	11.959	12.02	13.41	13.482	7
52	12.03	12.2055	13.4	14.305	15.5251	12
53	12.011	12.05	13.15	15.0215	15.07	8
54	12.86	13.14	14.5	15.5	15.576	9
55	12.084	12.125	12.85	13.885	14.7927	8
56	12.046	12.28	13.1	14.115	14.76	11
57	12.284	13.0975	14.35	15.38	16.664	8
58	12.95	14	14.2	16.015	16.079	11
59	11.744	12.32	14	14.379	14.9478	7
60	14.075	14.375	15.5	16.5	16.5	6



Lampiran 2. Nilai GCV pada setiap pemilihan titik knot dan lamda

Data balita laki-laki 1 titik knot

Jumlah Knot	Titik Knot	Lamda	GCV
1	5	200	5.12E-06
1	10	1400	4.92E-06
1	15	4500	4.79E-06
1	17	6500	4.78E-06
1	20	4500	4.79E-06
1	30	10300	4.78E-06
1	40	15600	5.07E-06
1	50	2500	5.23E-06

Data balita perempuan 1 titik knot

Jumlah Knot	Titik Knot	Lamda	GCV
1	5	100	2.18E-06
1	10	1300	2.14E-06
1	15	5500	2.16E-06
1	20	15100	2.20E-06
1	30	47900	2.29E-06
1	40	58700	2.36E-06
1	50	7400	2.38E-06

Data balita laki-laki 2 titik knot

Jumlah Knot	Titik Knot 1	Titik Knot 2	Lamda	GCV
2	5	10	600	4.91E-06
2	5	20	5700	4.78E-06
2	5	30	500	4.82E-06
2	5	40	300	4.92E-06
2	5	50	200	5.00E-06
2	10	20	51100	4.78E-06
2	10	30	4900	4.80E-06
2	10	40	2900	4.84E-06
2	10	50	4200	4.86E-06
2	15	20	65300	4.78E-06
2	15	25	23900	4.78E-06
	15	30	13100	4.78E-06
	15	35	10600	4.78E-06
	15	40	11200	4.78E-06
	15	50	19100	4.77E-06
	16	55	1300	4.77E-06



2	20	25	21400	4.79E-06
2	20	30	19500	4.80E-06
2	20	35	21500	4.80E-06
2	20	40	28300	4.80E-06
2	20	45	46700	4.79E-06
2	20	50	54700	4.79E-06
2	25	30	6200	4.82E-06
2	25	35	15200	4.83E-06
2	25	40	27200	4.83E-06
2	25	45	53100	4.83E-06
2	25	50	90000	4.83E-06
2	30	35	3500	4.87E-06
2	30	40	11300	4.88E-06
2	30	45	24400	4.89E-06
2	30	50	90600	4.90E-06
2	35	40	2400	4.94E-06
2	35	45	7700	4.96E-06
2	35	50	52700	4.98E-06
2	40	45	1300	5.02E-06
2	40	50	12300	5.07E-06
2	45	50	4600	5.17E-06

Data balita perempuan 2 titik knot

Jumlah Knot	Titik Knot 1	Titik Knot 2	Lamda	GCV
2	5	10	5700	2.14E-06
2	5	15	600	2.13E-06
2	5	20	300	2.15E-06
2	5	30	100	2.17E-06
2	5	40	100	2.18E-06
2	5	50	100	2.18E-06
2	10	20	2200	2.15E-06
2	10	30	1400	2.15E-06
2	10	40	1300	2.15E-06
2	10	50	3300	2.15E-06
2	15	20	2700	2.16E-06
2	15	25	3700	2.16E-06
2	15	30	4000	2.15E-06
2	15	35	4500	2.15E-06
	15	40	5300	2.15E-06
	15	50	8200	2.16E-06
	16	55	24800	2.16E-06
	20	25	1700	2.17E-06
	20	30	4200	2.17E-06



2	20	35	6600	2.17E-06
2	20	40	9500	2.18E-06
2	20	45	15900	2.19E-06
2	20	50	55500	2.20E-06
2	25	30	1500	2.19E-06
2	25	35	4700	2.20E-06
2	25	40	8900	2.21E-06
2	25	45	16000	2.23E-06
2	25	50	76200	2.25E-06
2	30	35	1400	2.23E-06
2	30	40	5300	2.25E-06
2	30	45	12400	2.27E-06
2	30	50	100900	2.29E-06
2	35	40	1700	2.29E-06
2	35	45	8200	2.32E-06
2	35	50	136600	2.33E-06
2	40	45	3900	2.35E-06
2	40	50	134100	2.36E-06
2	45	50	67900	2.38E-06

Data balita Laki-Laki 3 titik knot

Jumlah Knot	Titik Knot 1	Titik Knot 2	Titik Knot 3	Lamda	GCV
3	5	10	20	52900	4.78E-06
3	5	10	30	9800	4.80E-06
3	5	10	50	2800	4.86E-06
3	10	20	30	43500	4.79E-06
3	10	20	40	54900	4.79E-06
3	10	20	50	64700	4.78E-06
3	10	30	40	11300	4.81E-06
3	10	30	50	11500	4.81E-06
3	15	20	30	46600	4.78E-06
3	15	20	40	71900	4.78E-06
	15	20	50	75300	4.77E-06
	15	30	40	31800	4.79E-06
	15	30	50	26400	4.78E-06



3	15	40	50	25200	4.78E-06
3	20	30	40	35800	4.81E-06
3	20	30	50	24800	4.80E-06
3	30	40	50	2400	4.87E-06

Data balita Perempuan 3 titik knot

Jumlah Knot	Titik Knot 1	Titik Knot 2	Titik Knot 3	Lamda	GCV
3	5	10	20	3700	2.15E-06
3	5	10	30	4800	2.15E-06
3	5	10	50	2800	2.15E-06
3	10	20	30	7200	2.15E-06
3	10	20	40	4200	2.15E-06
3	10	20	50	3300	2.15E-06
3	10	30	40	3300	2.15E-06
3	10	30	50	3100	2.15E-06
3	15	20	30	16800	2.16E-06
3	15	20	40	7900	2.16E-06
3	15	20	50	3700	2.16E-06
3	15	30	40	13400	2.16E-06
3	15	30	50	8600	2.16E-06
3	15	40	50	2600	2.15E-06
3	20	30	40	9500	2.17E-06
3	20	30	50	5400	2.16E-06
3	30	40	50	700	2.21E-06



Lampiran 3. Output Hasil Estimasi Balita**Hasil Estimasi Balita Laki-Laki****Seluruh Data Balita Laki-Laki**

Jumlah Knot = 2
 titik knot[1]= 16
 titik knot[2]= 55
 Nilai Lamda = 1300
 Nilai Betatopi[1] = 3.741456
 Nilai Betatopi[2] = 0.6720281
 Nilai Betatopi[3] =-0.01688796
 Nilai Betatopi[4] = 0.01805005
 Nilai Betatopi[5] = 0.004833523
 Nilai GCV = 4.765921e-06
 Nilai R2 = 0.8590074
 Nilai MSE = 1.974901

Persentil 3

Jumlah Knot = 1
 Titik knot[1] = 25
 Nilai Lamda = 11600
 Nilai Betatopi[1] = 3.68801
 Nilai Betatopi[2] = 0.3906831
 Nilai Betatopi[3] = -0.005276942
 Nilai Betatopi[4] = 0.006416165
 Nilai GCV = 0.0002312059
 Nilai R2 = 0.9332982
 Nilai MSE = 0.7639242

[,1]

[1,] 3.688010
 [2,] 4.073416
 [3,] 4.448268
 [4,] 4.812567
 [5,] 5.166311
 [6,] 5.509502
 [7,] 5.842139
 [8,] 6.164221
 [9,] 6.475750
 [10,] 6.776725
 [11,] 7.067147
 [12,] 7.347014
 [13,] 7.616327
 [14,] 7.875087
 [15,] 8.123293
 [16,] 8.360944
 [17,] 8.588042
 [18,] 8.804586
 [19,] 9.01576
 [20,] 9.225013
 [21,] 9.432895
 [22,] 9.639523
 [23,] 9.844998



[24,] 9.882219
 [25,] 10.024885
 [26,] 10.156998
 [27,] 10.284974
 [28,] 10.415227
 [29,] 10.547759
 [30,] 10.682570
 [31,] 10.819659
 [32,] 10.959026
 [33,] 11.100672
 [34,] 11.244597
 [35,] 11.390799
 [36,] 11.539281
 [37,] 11.690040
 [38,] 11.843078
 [39,] 11.998395
 [40,] 12.155990
 [41,] 12.315864
 [42,] 12.478015
 [43,] 12.642446
 [44,] 12.809155
 [45,] 12.978142
 [46,] 13.149408
 [47,] 13.322952
 [48,] 13.498774
 [49,] 13.676875
 [50,] 13.857255
 [51,] 14.039913
 [52,] 14.224849
 [53,] 14.412064
 [54,] 14.601557
 [55,] 14.793329
 [56,] 14.987379
 [57,] 15.183708
 [58,] 15.382315
 [59,] 15.583201
 [60,] 15.786365
 [61,] 15.991807

Persentil 15

Jumlah Knot = 2
 titik knot[1] = 10
 titik knot[2] = 35
 Nilai Lamda = 1700
 Nilai Betatopi[1] = 4.15866
 Nilai Betatopi[2] = 0.400015
 Nilai Betatopi[3] = -0.006263787
 op[4] = 0.003121944
 op[5] = 0.005466334
 = 0.000148063
 0.9573551
 = 0.5080562



- [1,] 4.158660
- [2,] 4.552411
- [3,] 4.933635
- [4,] 5.302331
- [5,] 5.658499
- [6,] 6.002140
- [7,] 6.333253
- [8,] 6.651839
- [9,] 6.957897
- [10,] 7.251428
- [11,] 7.532431
- [12,] 7.804028
- [13,] 8.069342
- [14,] 8.328372
- [15,] 8.581119
- [16,] 8.827581
- [17,] 9.067760
- [18,] 9.301655
- [19,] 9.529267
- [20,] 9.750595
- [21,] 9.965639
- [22,] 10.174400
- [23,] 10.376877
- [24,] 10.573070
- [25,] 10.762979
- [26,] 10.946605
- [27,] 11.123947
- [28,] 11.295006
- [29,] 11.459780
- [30,] 11.618271
- [31,] 11.770479
- [32,] 11.916402
- [33,] 12.056042
- [34,] 12.189399
- [35,] 12.316471
- [36,] 12.437260
- [37,] 12.557232
- [38,] 12.681852
- [39,] 12.811122
- [40,] 12.945041
- [41,] 13.083608
- [42,] 13.226825
- [43,] 13.374690
- [44,] 13.527204
- [45,] 13.684368
- [46,] 13.846180
- [47,] 14.012642
- [48,] 14.183752
- [49,] 14.359512
- [50,] 14.539920

- 4977
- 4684
- 9039
- 8043
- 1696



- [56,] 15.719999
- [57,] 15.932950
- [58,] 16.150550
- [59,] 16.372799
- [60,] 16.599698
- [61,] 16.831245

Persentil 50

Jumlah Knot= 2
titik knot[1] = 15
titik knot[2] = 50
Nilai Lamda = 1600
Nilai Betatopi[1] = 4.538896
Nilai Betatopi[2] = 0.4618944
Nilai Betatopi[3] = -0.008928763
Nilai Betatopi[4] = 0.008639848
Nilai Betatopi[5] = 0.004855975
Nilai GCV = 0.0001493123
Nilai R2 = 0.9568059
Nilai MSE = 0.591761

- [,1]
- [1,] 4.538896
- [2,] 4.991861
- [3,] 5.426970
- [4,] 5.844220
- [5,] 6.243613
- [6,] 6.625149
- [7,] 6.988827
- [8,] 7.334647
- [9,] 7.662610
- [10,] 7.972716
- [11,] 8.264964
- [12,] 8.539354
- [13,] 8.795887
- [14,] 9.034562
- [15,] 9.255380
- [16,] 9.458340
- [17,] 9.652083
- [18,] 9.845248
- [19,] 10.037835
- [20,] 10.229844
- [21,] 10.421275
- [22,] 10.612128
- [23,] 10.802404
- [24,] 10.992102
- [25,] 11.181222
- [26,] 11.369764

- 7728
- 5115
- 1923
- 8154
- 3807
- 8882



- [33,] 12.673380
- [34,] 12.857299
- [35,] 13.040641
- [36,] 13.223405
- [37,] 13.405591
- [38,] 13.587199
- [39,] 13.768229
- [40,] 13.948682
- [41,] 14.128557
- [42,] 14.307853
- [43,] 14.486572
- [44,] 14.664714
- [45,] 14.842277
- [46,] 15.019263
- [47,] 15.195670
- [48,] 15.371500
- [49,] 15.546752
- [50,] 15.721426
- [51,] 15.895523
- [52,] 16.073897
- [53,] 16.261406
- [54,] 16.458049
- [55,] 16.663826
- [56,] 16.878737
- [57,] 17.102782
- [58,] 17.335961
- [59,] 17.578274
- [60,] 17.829722
- [61,] 18.090304

Persentil 85

Jumlah Knot= 2
titik knot[1]= 15
titik knot[2]= 54
Nilai Lamda = 1200
Nilai Betatopi[1]= 5.266203
Nilai Betatopi[2]= 0.5368789
Nilai Betatopi[3]= -0.01212945
Nilai Betatopi[4]= 0.01289288
Nilai Betatopi[5]= 0.001957845
Nilai GCV = 0.0004446332
Nilai R2= 0.9036873
Nilai MSE = 1.62468

- [,1]
- [1,] 5.266203
- [2,] 5.790953
- [3,] 6.291443
- [4,] 6.767675
- [5,] 7.219648

- 362
- 816
- 013
- 950
- 5628
- 2047



- [12,] 9.704208
- [13,] 9.962109
- [14,] 10.195752
- [15,] 10.405135
- [16,] 10.590260
- [17,] 10.764019
- [18,] 10.939305
- [19,] 11.116117
- [20,] 11.294456
- [21,] 11.474323
- [22,] 11.655716
- [23,] 11.838636
- [24,] 12.023082
- [25,] 12.209056
- [26,] 12.396556
- [27,] 12.585584
- [28,] 12.776138
- [29,] 12.968219
- [30,] 13.161827
- [31,] 13.356961
- [32,] 13.553623
- [33,] 13.751811
- [34,] 13.951526
- [35,] 14.152768
- [36,] 14.355537
- [37,] 14.559833
- [38,] 14.765656
- [39,] 14.973005
- [40,] 15.181882
- [41,] 15.392285
- [42,] 15.604215
- [43,] 15.817672
- [44,] 16.032655
- [45,] 16.249166
- [46,] 16.467203
- [47,] 16.686768
- [48,] 16.907859
- [49,] 17.130477
- [50,] 17.354622
- [51,] 17.580293
- [52,] 17.807492
- [53,] 18.036217
- [54,] 18.266470
- [55,] 18.498249
- [56,] 18.733512
- [57,] 18.974219
- [58,] 19.220368
- [59,] 19.471959
- [60,] 19.728993
- [61,] 19.991469



97

pt= 2

titik knot[1]= 3
 titik knot[2]= 16
 Nilai Lamda = 3400
 Nilai Betatopi[1]= 5.252174
 Nilai Betatopi[2]= 0.6092479
 Nilai Betatopi[3]= -0.01356397
 Nilai Betatopi[4]= 0.0002933283
 Nilai Betatopi[5]= 0.01400924
 Nilai GCV = 0.0005981301
 Nilai R2= 0.8918796
 Nilai MSE = 2.104073

[,1]
 [1,] 5.252174
 [2,] 5.847858
 [3,] 6.416414
 [4,] 6.957842
 [5,] 7.472436
 [6,] 7.960488
 [7,] 8.421999
 [8,] 8.856968
 [9,] 9.265397
 [10,] 9.647284
 [11,] 10.002629
 [12,] 10.331434
 [13,] 10.633697
 [14,] 10.909419
 [15,] 11.158600
 [16,] 11.381239
 [17,] 11.577337
 [18,] 11.760903
 [19,] 11.945946
 [20,] 12.132467
 [21,] 12.320464
 [22,] 12.509939
 [23,] 12.700891
 [24,] 12.893321
 [25,] 13.087227
 [26,] 13.282611
 [27,] 13.479471
 [28,] 13.677809
 [29,] 13.877625
 [30,] 14.078917
 [31,] 14.281687
 [32,] 14.485934
 [33,] 14.691658
 [34,] 14.898859
 [35,] 15.107537
 [36,] 15.317693
 [37,] 15.529326
 [38,] 15.742436

7023
 3088
 0629
 9648
 0144



[44,] 17.052118
 [45,] 17.275568
 [46,] 17.500496
 [47,] 17.726901
 [48,] 17.954783
 [49,] 18.184142
 [50,] 18.414978
 [51,] 18.647292
 [52,] 18.881083
 [53,] 19.116351
 [54,] 19.353096
 [55,] 19.591319
 [56,] 19.831018
 [57,] 20.072195
 [58,] 20.314849
 [59,] 20.558981
 [60,] 20.804589
 [61,] 21.051675

Hasil Estimasi Balita Perempuan

Jumlah Knot= 2
 titik knot[1]= 5
 titik knot[2]= 15
 Nilai Lamda = 600
 Nilai Betatopi[1] = 3.162943
 Nilai Betatopi[2] = 0.5560356
 Nilai Betatopi[3] = -0.01597215
 Nilai Betatopi[4] = 0.003775968
 Nilai Betatopi[5] = 0.01188873
 Nilai GCV = 2.14139e-06
 Nilai R2 = 0.889811
 Nilai MSE = 0.9912077

Persentil 3

Jumlah Knot= 2
 titik knot[1]= 5
 titik knot[2]= 14
 Nilai Lamda = 2300
 Nilai Betatopi[1]= 2.689756
 Nilai Betatopi[2]= 0.370901
 Nilai Betatopi[3]= -0.007708389
 Nilai Betatopi[4]= 0.000759283
 Nilai Betatopi[5]= 0.006278635
 Nilai GCV = 7.394191e-05
 Nilai R2= 0.9642249
 Nilai MSE = 0.2889894

[1]

756
 948
 724
 083
 026



- [6,] 4.351551
- [7,] 4.638419
- [8,] 4.911389
- [9,] 5.170460
- [10,] 5.415634
- [11,] 5.646909
- [12,] 5.864286
- [13,] 6.067765
- [14,] 6.257345
- [15,] 6.433027
- [16,] 6.601090
- [17,] 6.767812
- [18,] 6.933193
- [19,] 7.097233
- [20,] 7.259932
- [21,] 7.421290
- [22,] 7.581307
- [23,] 7.739983
- [24,] 7.897318
- [25,] 8.053312
- [26,] 8.207965
- [27,] 8.361278
- [28,] 8.513249
- [29,] 8.663880
- [30,] 8.813169
- [31,] 8.961118
- [32,] 9.107725
- [33,] 9.252992
- [34,] 9.396918
- [35,] 9.539503
- [36,] 9.680747
- [37,] 9.820650
- [38,] 9.959211
- [39,] 10.096433
- [40,] 10.232313
- [41,] 10.366852
- [42,] 10.500050
- [43,] 10.631907
- [44,] 10.762424
- [45,] 10.891599
- [46,] 11.019433
- [47,] 11.145927
- [48,] 11.271079
- [49,] 11.394891
- [50,] 11.517362
- [51,] 11.638492
- [52,] 11.758280
- [53,] 11.876728
- [54,] 11.993835
- [55,] 12.109601

- 4026
- 7110
- 8853
- 9255
- 8317



[61,] 12.776037

Persentil 15

Jumlah Knot= 2
titik knot[1]= 10
titik knot[2]= 50
Nilai Lamda = 800
Nilai Betatopi[1]= 3.466402
Nilai Betatopi[2]= 0.3349069
Nilai Betatopi[3]=-0.00624715
Nilai Betatopi[4]= 0.004714762
Nilai Betatopi[5]= 0.002647668
Nilai GCV = 6.983766e-05
Nilai R2= 0.9593621
Nilai MSE = 0.3175124

[,1]

[1,] 3.466402
[2,] 3.795061
[3,] 4.111227
[4,] 4.414898
[5,] 4.706075
[6,] 4.984757
[7,] 5.250946
[8,] 5.504640
[9,] 5.745839
[10,] 5.974545
[11,] 6.190756
[12,] 6.399187
[13,] 6.604554
[14,] 6.806856
[15,] 7.006093
[16,] 7.202266
[17,] 7.395373
[18,] 7.585416
[19,] 7.772394
[20,] 7.956308
[21,] 8.137156
[22,] 8.314940
[23,] 8.489659
[24,] 8.661313
[25,] 8.829902
[26,] 8.995427
[27,] 9.157887
[28,] 9.317282
[29,] 9.473612
[30,] 9.626878
[31,] 9.777079

215
8286
9292
7234
2111
3923



- [38,] 10.742670
- [39,] 10.868353
- [40,] 10.990971
- [41,] 11.110524
- [42,] 11.227012
- [43,] 11.340435
- [44,] 11.450794
- [45,] 11.558088
- [46,] 11.662317
- [47,] 11.763481
- [48,] 11.861581
- [49,] 11.956616
- [50,] 12.048586
- [51,] 12.137491
- [52,] 12.225979
- [53,] 12.316698
- [54,] 12.409647
- [55,] 12.504827
- [56,] 12.602237
- [57,] 12.701878
- [58,] 12.803749
- [59,] 12.907851
- [60,] 13.014184
- [61,] 13.122747

Persentil 50

Jumlah Knot= 2
titik knot[1]= 5
titik knot[2]= 20
Nilai Lamda = 100
Nilai Betatopi[1]= 3.83006
Nilai Betatopi[2]= 0.383527
Nilai Betatopi[3]=-0.006306478
Nilai Betatopi[4]= 0.0006861752
Nilai Betatopi[5]= 0.005098235
Nilai GCV = 9.401235e-05
Nilai R2= 0.9620922
Nilai MSE = 0.3281969

- [,1]
- [1,] 3.830060
- [2,] 4.207280
- [3,] 4.571888
- [4,] 4.923882
- [5,] 5.263264
- [6,] 5.590033
- [7,] 5.904874
- [8,] 6.208476
- 836
- 956
- 836
- 0475
- 7873
- 4031



- [15,] 8.018948
- [16,] 8.232624
- [17,] 8.435060
- [18,] 8.626255
- [19,] 8.806210
- [20,] 8.974924
- [21,] 9.132397
- [22,] 9.283728
- [23,] 9.434015
- [24,] 9.583258
- [25,] 9.731456
- [26,] 9.878611
- [27,] 10.024721
- [28,] 10.169787
- [29,] 10.313809
- [30,] 10.456787
- [31,] 10.598721
- [32,] 10.739611
- [33,] 10.879456
- [34,] 11.018258
- [35,] 11.156015
- [36,] 11.292728
- [37,] 11.428397
- [38,] 11.563022
- [39,] 11.696602
- [40,] 11.829139
- [41,] 11.960631
- [42,] 12.091080
- [43,] 12.220484
- [44,] 12.348844
- [45,] 12.476160
- [46,] 12.602431
- [47,] 12.727659
- [48,] 12.851843
- [49,] 12.974982
- [50,] 13.097077
- [51,] 13.218128
- [52,] 13.338135
- [53,] 13.457098
- [54,] 13.575017
- [55,] 13.691891
- [56,] 13.807721
- [57,] 13.922508
- [58,] 14.036250
- [59,] 14.148948
- [60,] 14.260602
- [61,] 14.371211

Persentil 85



ot= 2
]= 3
]= 11
 a = 700
 opi[1]= 4.392241

Nilai Betatopi[2]= 0.3819499
 Nilai Betatopi[3]=-0.007661024
 Nilai Betatopi[4]= 0.0003289157
 Nilai Betatopi[5]= 0.006001881
 Nilai GCV = 7.446791e-05
 Nilai R2= 0.9647905
 Nilai MSE = 0.3467725

- [,1]
- [1,] 4.392241
- [2,] 4.766530
- [3,] 5.125497
- [4,] 5.469141
- [5,] 5.797793
- [6,] 6.111780
- [7,] 6.411103
- [8,] 6.695762
- [9,] 6.965757
- [10,] 7.221088
- [11,] 7.461754
- [12,] 7.687756
- [13,] 7.905096
- [14,] 8.119775
- [15,] 8.331794
- [16,] 8.541152
- [17,] 8.747850
- [18,] 8.951888
- [19,] 9.153265
- [20,] 9.351981
- [21,] 9.548037
- [22,] 9.741433
- [23,] 9.932168
- [24,] 10.120243
- [25,] 10.305657
- [26,] 10.488411
- [27,] 10.668504
- [28,] 10.845937
- [29,] 11.020710
- [30,] 11.192822
- [31,] 11.362273
- [32,] 11.529064
- [33,] 11.693195
- [34,] 11.854665
- [35,] 12.013475
- [36,] 12.169624
- [37,] 12.323113
- [38,] 12.473941
- [39,] 12.622109
- [40,] 12.767617
- [41,] 12.910464
- [42,] 13.050650

- 8176
- 3042
- 5247
- 4792
- 1676



- [48,] 13.835900
- [49,] 13.957463
- [50,] 14.076366
- [51,] 14.192608
- [52,] 14.306190
- [53,] 14.417112
- [54,] 14.525373
- [55,] 14.630974
- [56,] 14.733914
- [57,] 14.834193
- [58,] 14.931813
- [59,] 15.026771
- [60,] 15.119070
- [61,] 15.208708

Persentil 97

- Jumlah Knot= 2
- titik knot[1]= 5
- titik knot[2]= 12
- Nilai Lamda = 1600
- Nilai Betatopi[1]= 4.428684
- Nilai Betatopi[2]= 0.4256295
- Nilai Betatopi[3]=-0.009352338
- Nilai Betatopi[4]= 0.001110949
- Nilai Betatopi[5]= 0.006971884
- Nilai GCV = 0.0001189294
- Nilai R2 = 0.9538706
- Nilai MSE = 0.4888092
- [,1]
- [1,] 4.428684
- [2,] 4.844961
- [3,] 5.242534
- [4,] 5.621401
- [5,] 5.981565
- [6,] 6.323023
- [7,] 6.646888
- [8,] 6.954270
- [9,] 7.245169
- [10,] 7.519585
- [11,] 7.777519
- [12,] 8.018970
- [13,] 8.243938
- [14,] 8.459395
- [15,] 8.672313
- [16,] 8.882693
- [17,] 9.090533
- [18,] 9.295834
- 3596
- 3819
- 5503
- 1648
- 4255
- 4322



[25,] 10.661850
[26,] 10.846839
[27,] 11.029289
[28,] 11.209200
[29,] 11.386572
[30,] 11.561405
[31,] 11.733699
[32,] 11.903454
[33,] 12.070670
[34,] 12.235347
[35,] 12.397485
[36,] 12.557084
[37,] 12.714144
[38,] 12.868665
[39,] 13.020647
[40,] 13.170090
[41,] 13.316994
[42,] 13.461359
[43,] 13.603185
[44,] 13.742472
[45,] 13.879220
[46,] 14.013429
[47,] 14.145099
[48,] 14.274230
[49,] 14.400822
[50,] 14.524875
[51,] 14.646388
[52,] 14.765363
[53,] 14.881799
[54,] 14.995696
[55,] 15.107054
[56,] 15.215873
[57,] 15.322153
[58,] 15.425893
[59,] 15.527095
[60,] 15.625758
[61,] 15.721882

