MODEL
WEIGHTED SPLINE MODEL TO DESIGN GROWTH CHART PROVINCE OF EAST JAVA

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Abstract
Growth chart is a tool used to monitor infants’ growth. In Indonesia there are Kartu Menuju Sehat (KMS) that are used to monitoring infants’ nutrition and growth. These KMS are modified from WHO-NCHS standard. On the other hand KMS applied in Indonesia today are less appropriate to measure infant’ growth especially in East Java. Base on curve representation of infants’ growth in East Java, there are data pattern change in certain interval, and also the occurrence of unequal an error variance. Regarding this situation weighted spline is the suitable approach to modeling infants’ growth in East Java. According to the weighted spline regression analysis the pattern changes of infant’s growth in East Java occurred at age 6 months and 13. KMS design by using weighted spline approach has $R^2$ value greater than 99% for each percentile, hence this design is really appropriate to describe infant’s growth pattern in the Province of East Java. Overall, this KMS has a lower evaluator standard compare to the KMS used in Indonesia today.

Keywords : Growth Chart, Curve, Spline, Model, Design.