development of the RMSE prediction model of the Central Java Province FTT can be seen in Figure 10.

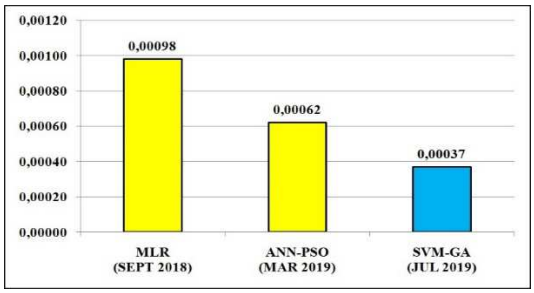

Fig. 10 Increase in RMSE for the current FTT Province Central Java prediction model

IV. CONCLUSIONS

This study seeks reliable predictive models, increases predictive accuracy throgh RMSE evaluation and looks for the optimal window size for SVM and SVM-GA prediction methods. The first conclusion is the SVM prediction model has better robustness than the prediction models of previous studies (ANN and ANN-PSO). Based on the size of the RMSE, SVM outperformed far from ANN and ANN-PSO. The best RMSE obtained by SVM is 0.00044; The best RMSE obtained by ANN is 0.00066, and the best RMSE obtained by ANN-PSO is 0.00062.

Then the second conclusion is the optimization of the SVM method using GA successfully increasing the prediction accuracy of the SVM prediction model without optimization. GA in searching the optimal parameter value ε, σ, C has found optimal values for the prediction of Central Java Province NTP well. The optimal parameter value produced by GA is ε = 0.00001; σ = 1.8832631609640127; C = 0.5004387976587574. The parameter value is used for window size 6 with Hold-Out CV 80:20. The RMSE SVM-GA with the optimal parameter value, produces the best RMSE of 0.00037. The TMS test has been carried out, and the result is a significant change from before and after being optimized.

The third conclusion is the optimal window size for SVM-GA is size 6 and size 8 with the RMSE value obtained at 0.00037 while the optimal window size for SVM is size 6, size 8, and size 10 with the RMSE value obtained at 0.00044.

The fourth conclusion is the development of RMSE for the Central Java FTT prediction model from previous studies also yields better accuracy. In the research [2] in 2018, it produced the best RMSE of 0.00098 using the Multi Linear Regression algorithm method. Continued by research [3] in 2019, it produced the best RMSE of 0.00062 with the ANN-PSO algorithm method. Currently, the most recent Central Java FTT prediction research, namely in 2019, produces the best RMSE of 0.00037 using the SVM-GA algorithm method. Suggestions for further research are using more Central Java Province NTP datasets, comparing SVM-PSO with ANN-PSO or SVM-GA with ANN-GA, looking for other optimization methods and compared with what has been done in the prediction of Central Java Province NTP prediction.

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