Supplementary Figures

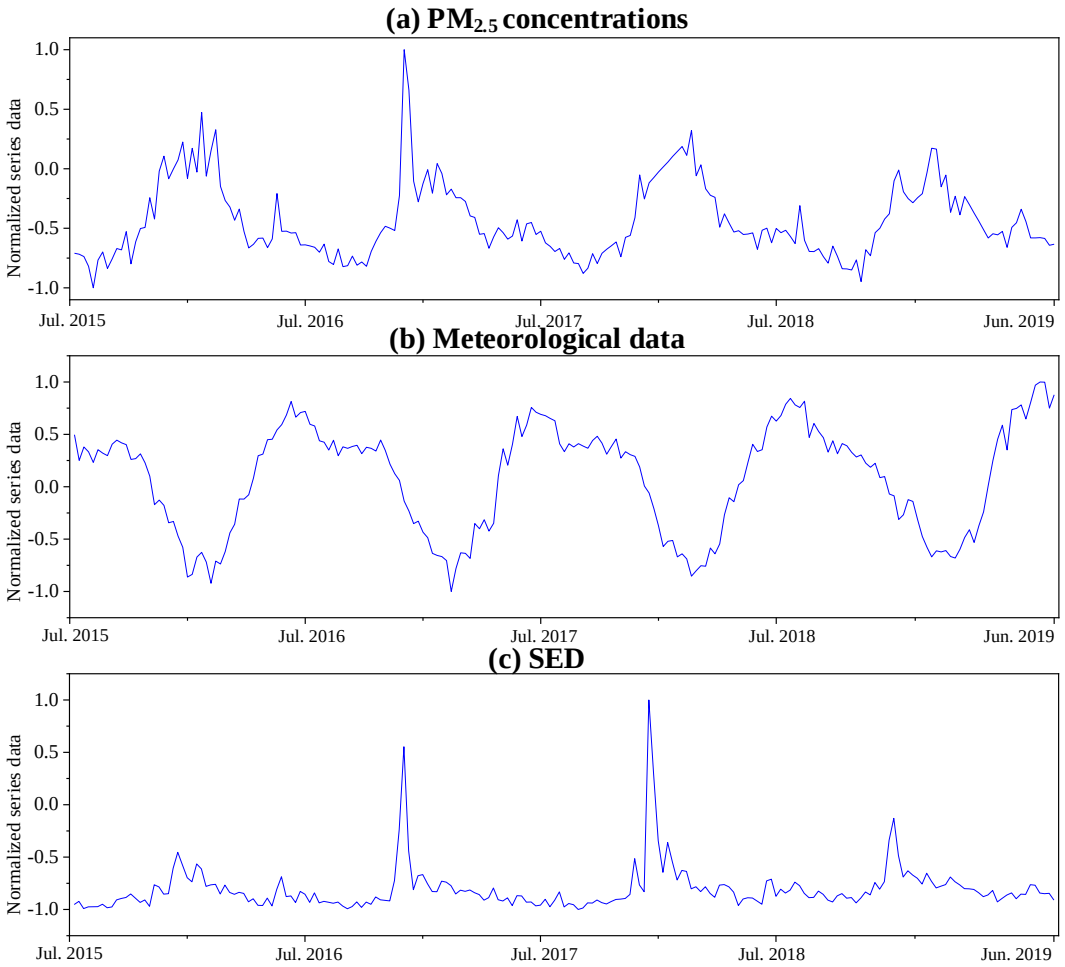

Figure S1 Normalized series data of $PM_{2.5}$ (a) and the big data introduced (b-c) in New Delhi.

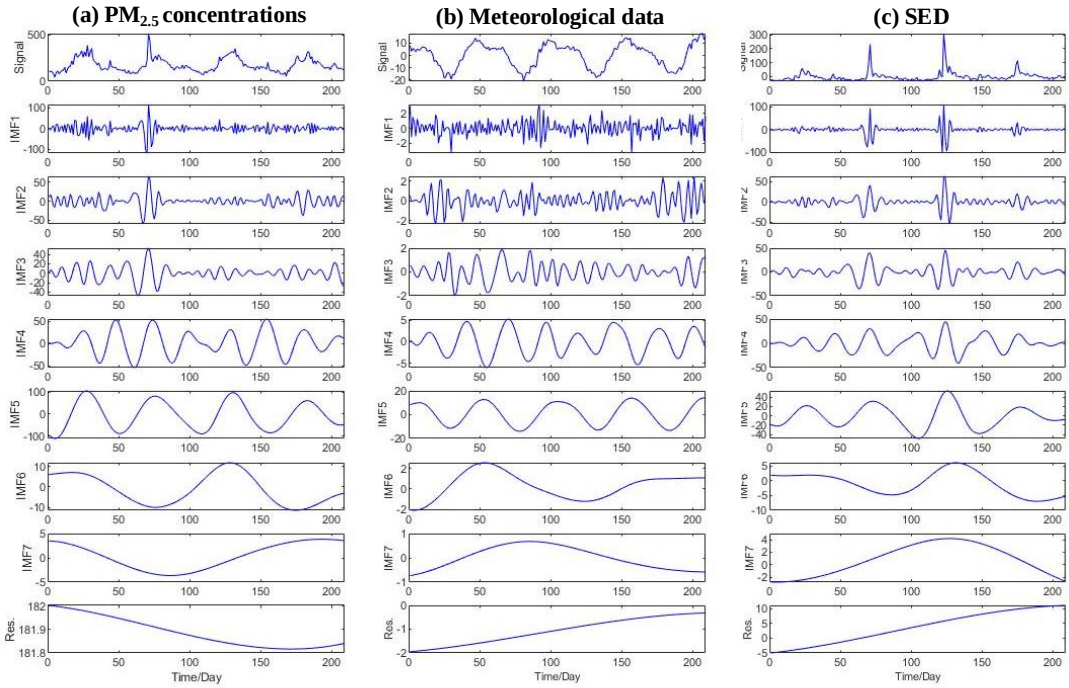

Figure S2 Scale-aligned modes of $PM_{2.5}$ (a) and related big data (b-c) extracted by MEMD for New Delhi.

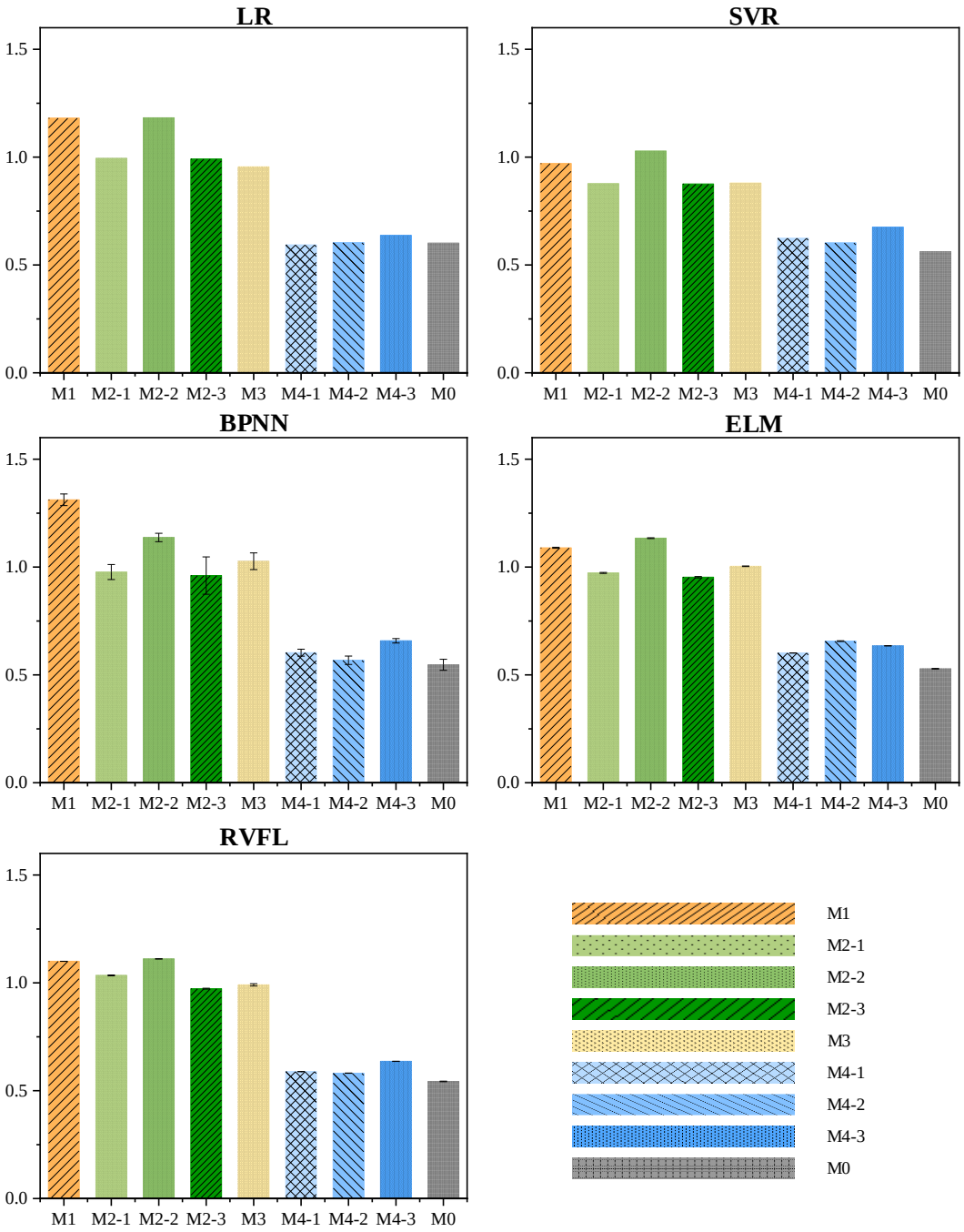

Figure S3 Performance comparison of different learning paradigms in terms of *MAPE* for Beijing (in one-step-ahead prediction).

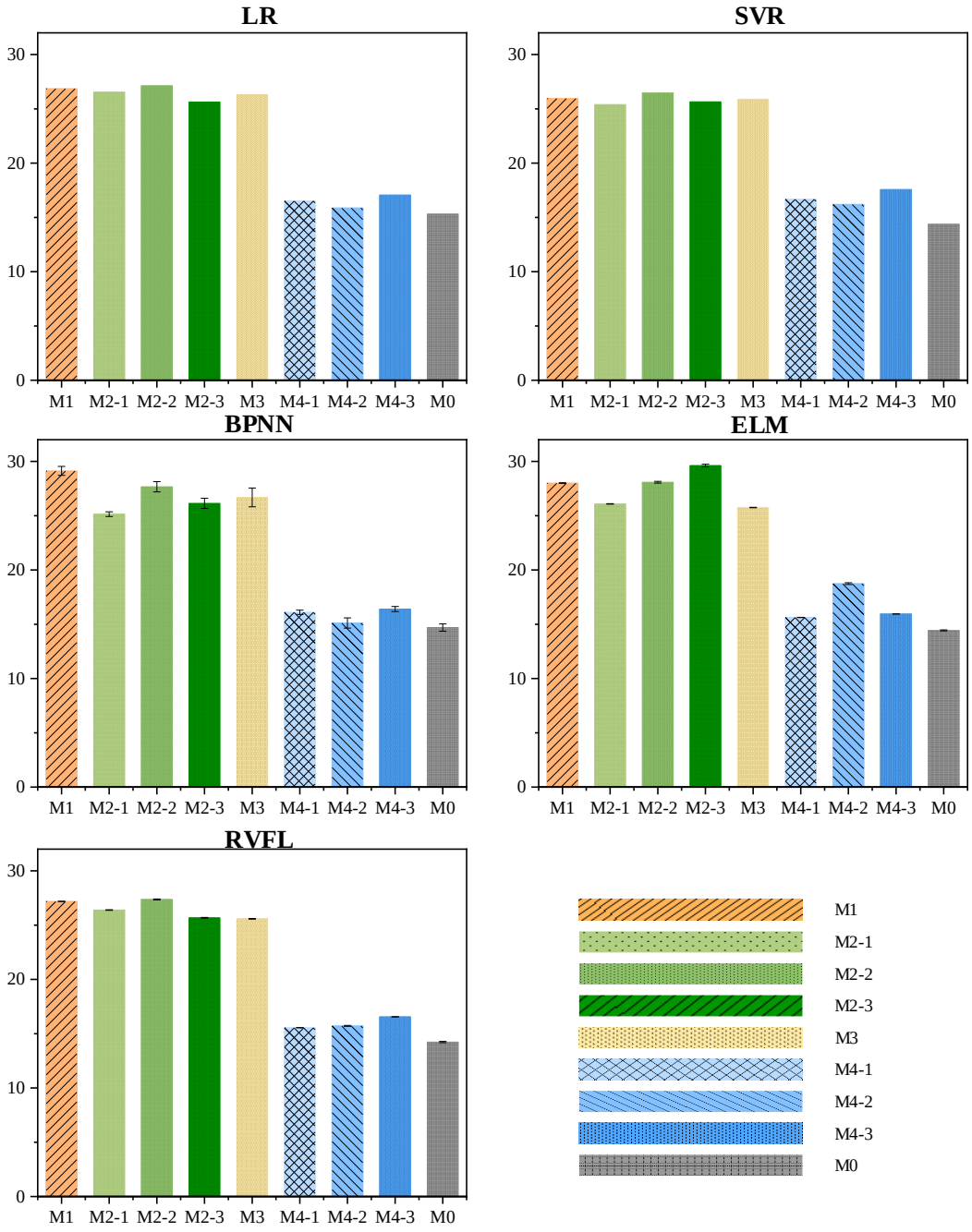

Figure S4 Performance comparison of different learning paradigms in terms of *RMSE* for Beijing (in one-step-ahead prediction).

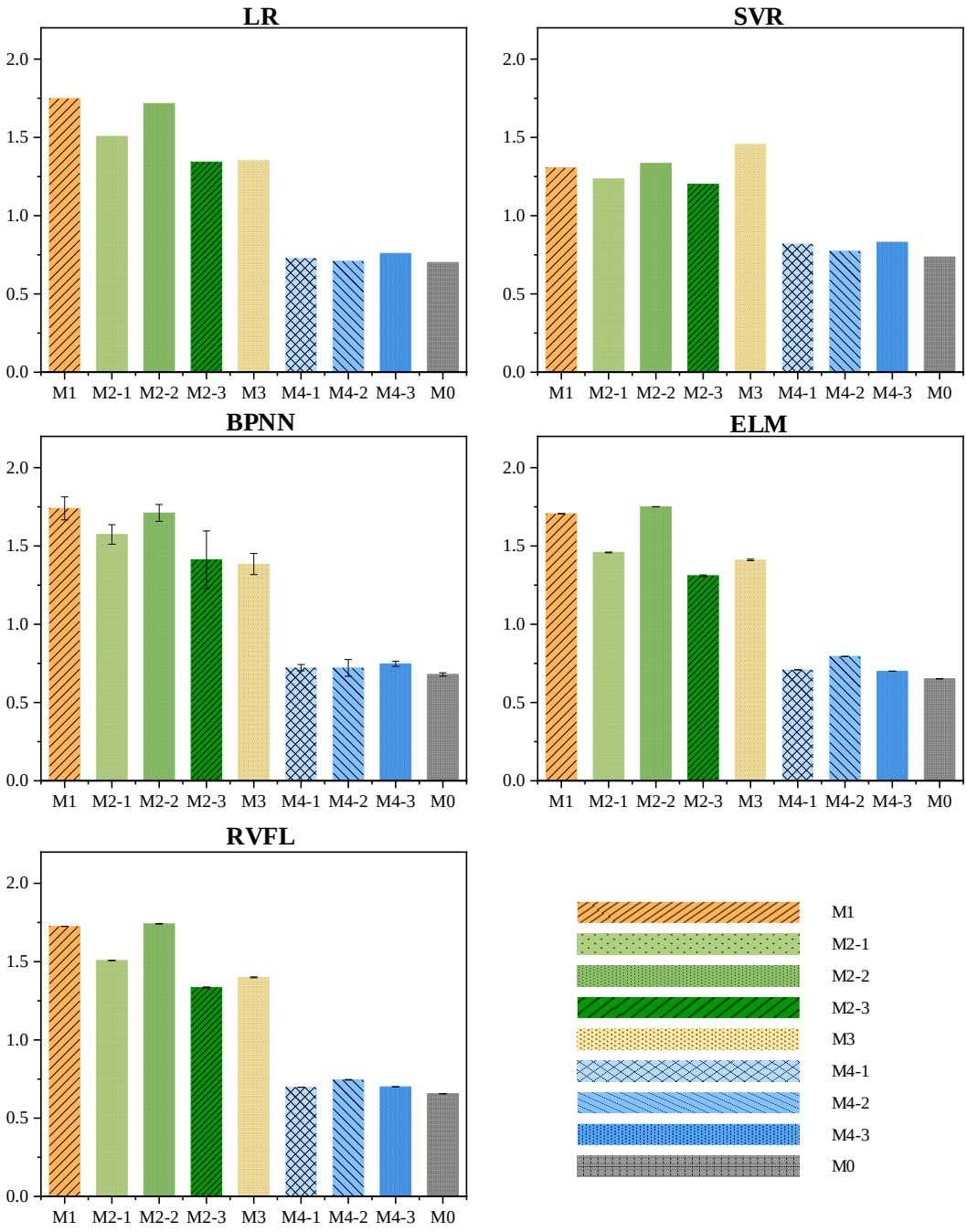

Figure S5 Performance comparison of different learning paradigms in terms of *MAPE* for Beijing (in two-step-ahead prediction).

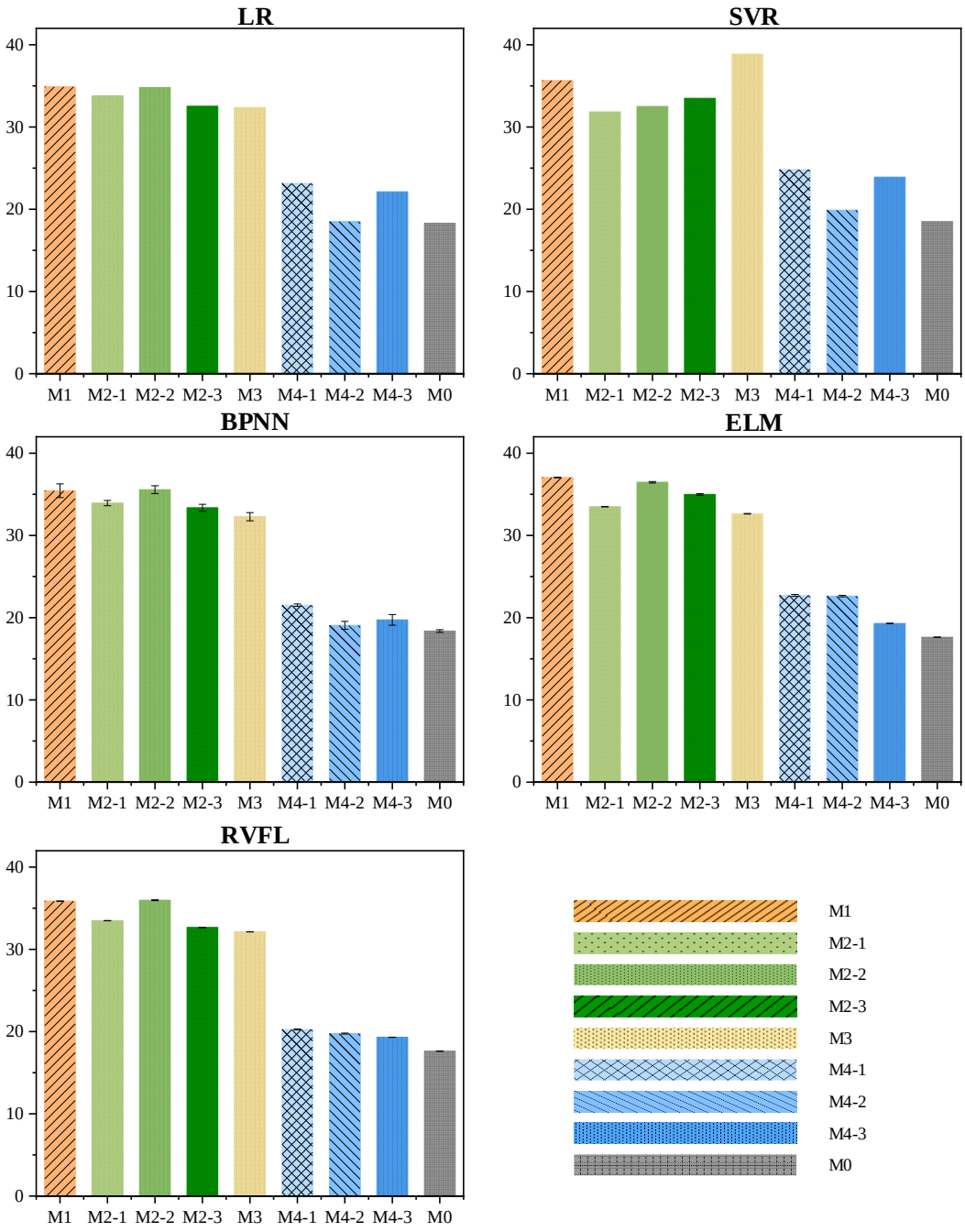

Figure S6 Performance comparison of different learning paradigms in terms of *RMSE* for Beijing (in two-step-ahead prediction).

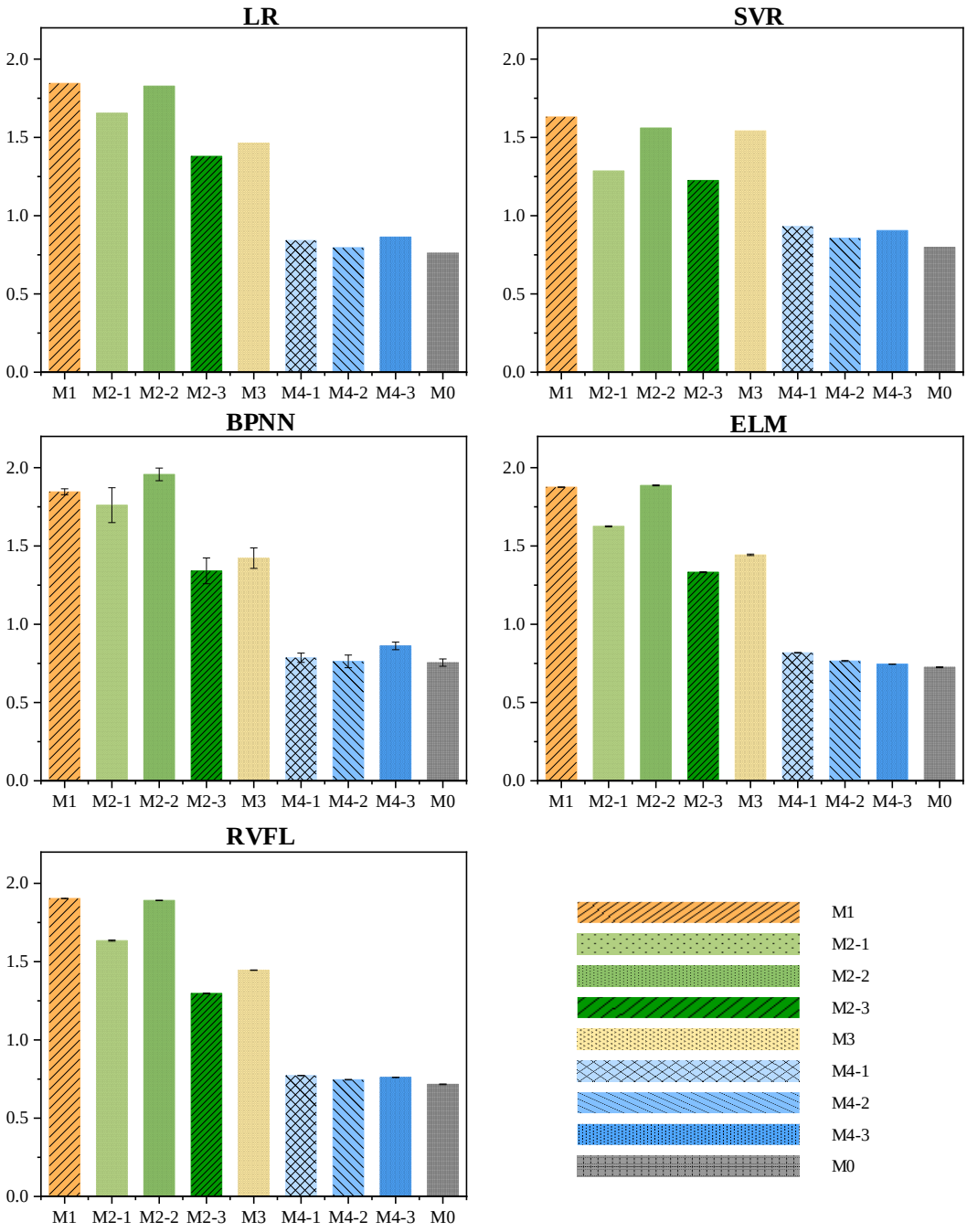

Figure S7 Performance comparison of different learning paradigms in terms of *MAPE* for Beijing (in three-step-ahead prediction).

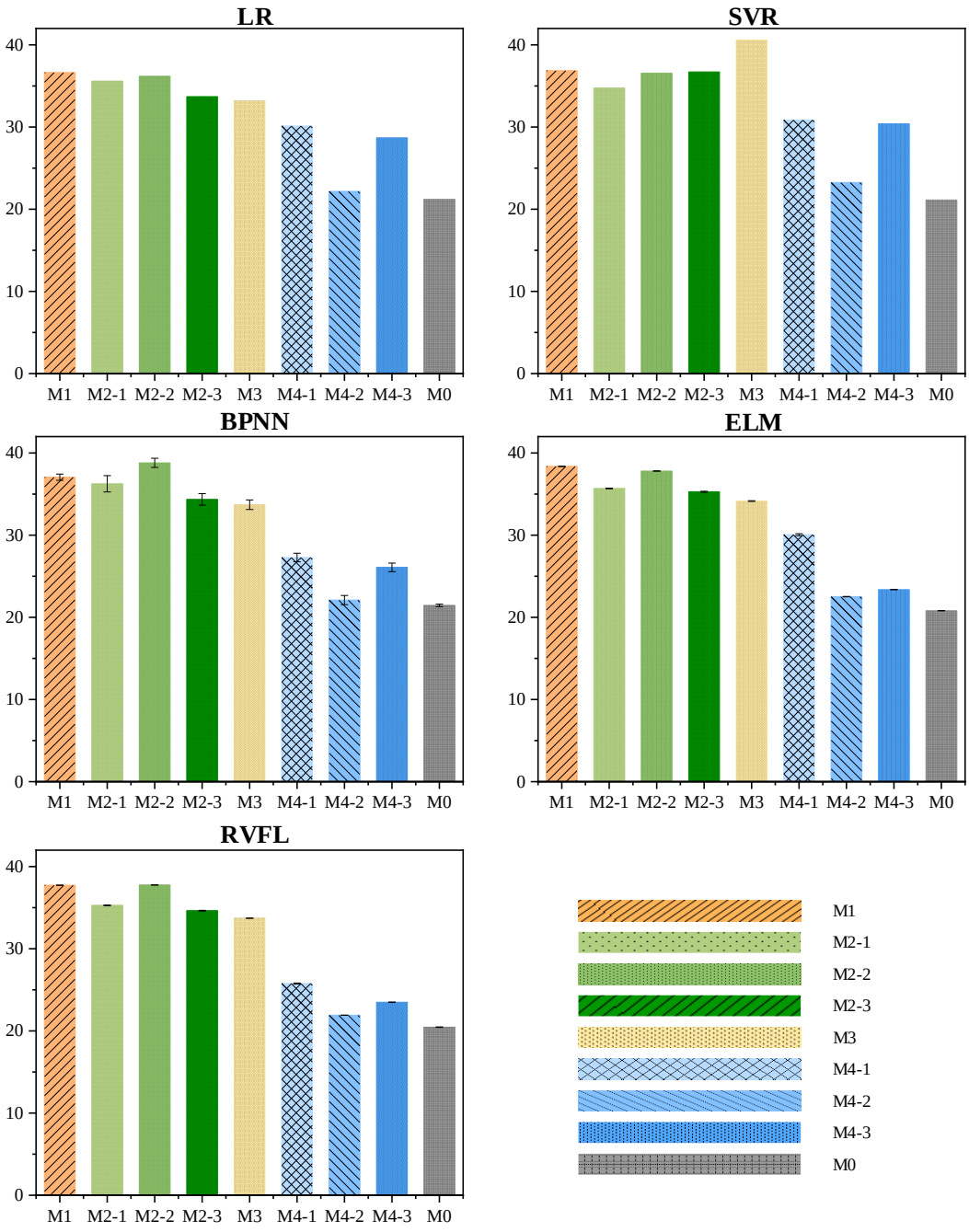

Figure S8 Performance comparison of different learning paradigms in terms of *RMSE* for Beijing (in three-step-ahead prediction).

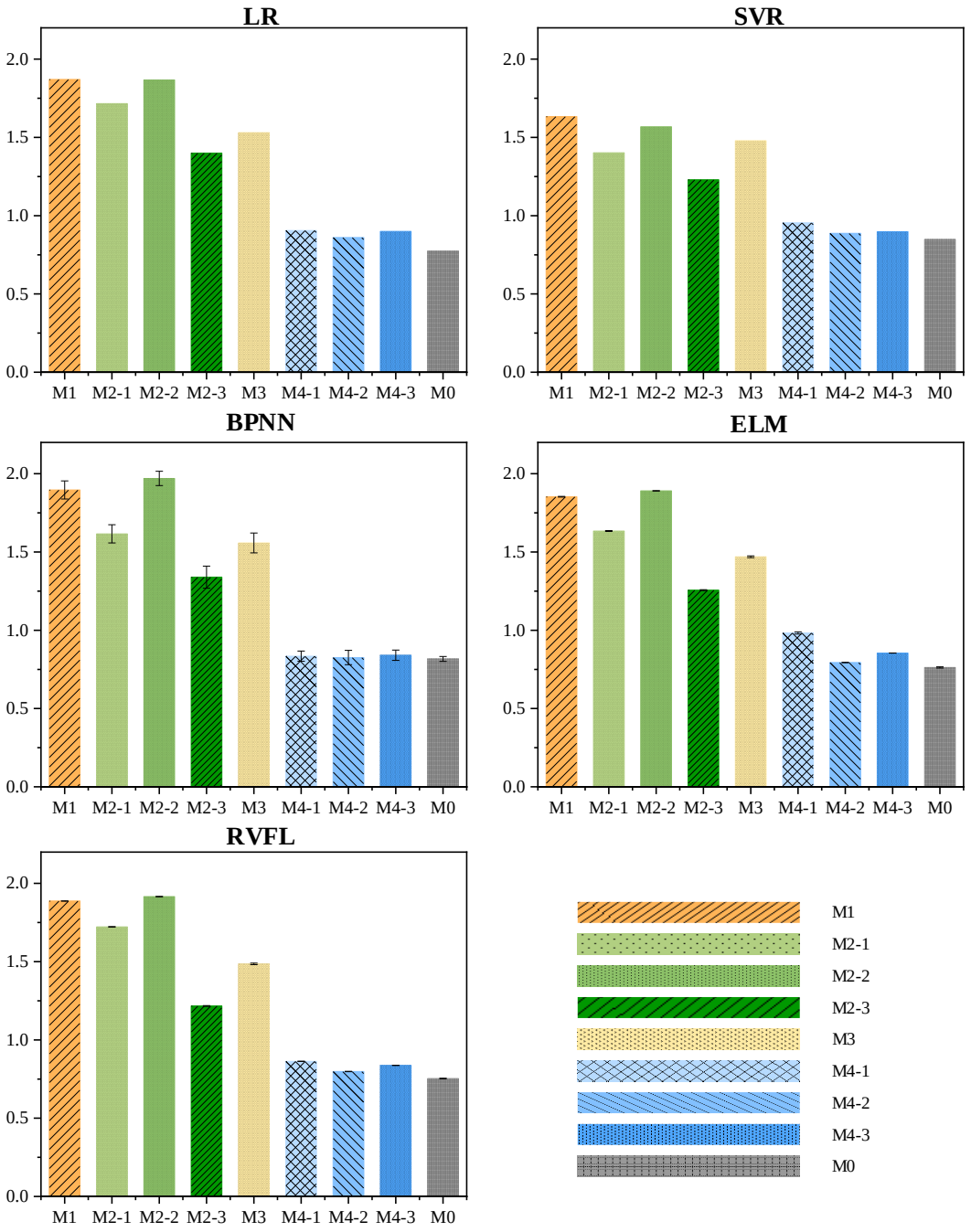

Figure S9 Performance comparison of different learning paradigms in terms of *MAPE* for Beijing (in four-step-ahead prediction).

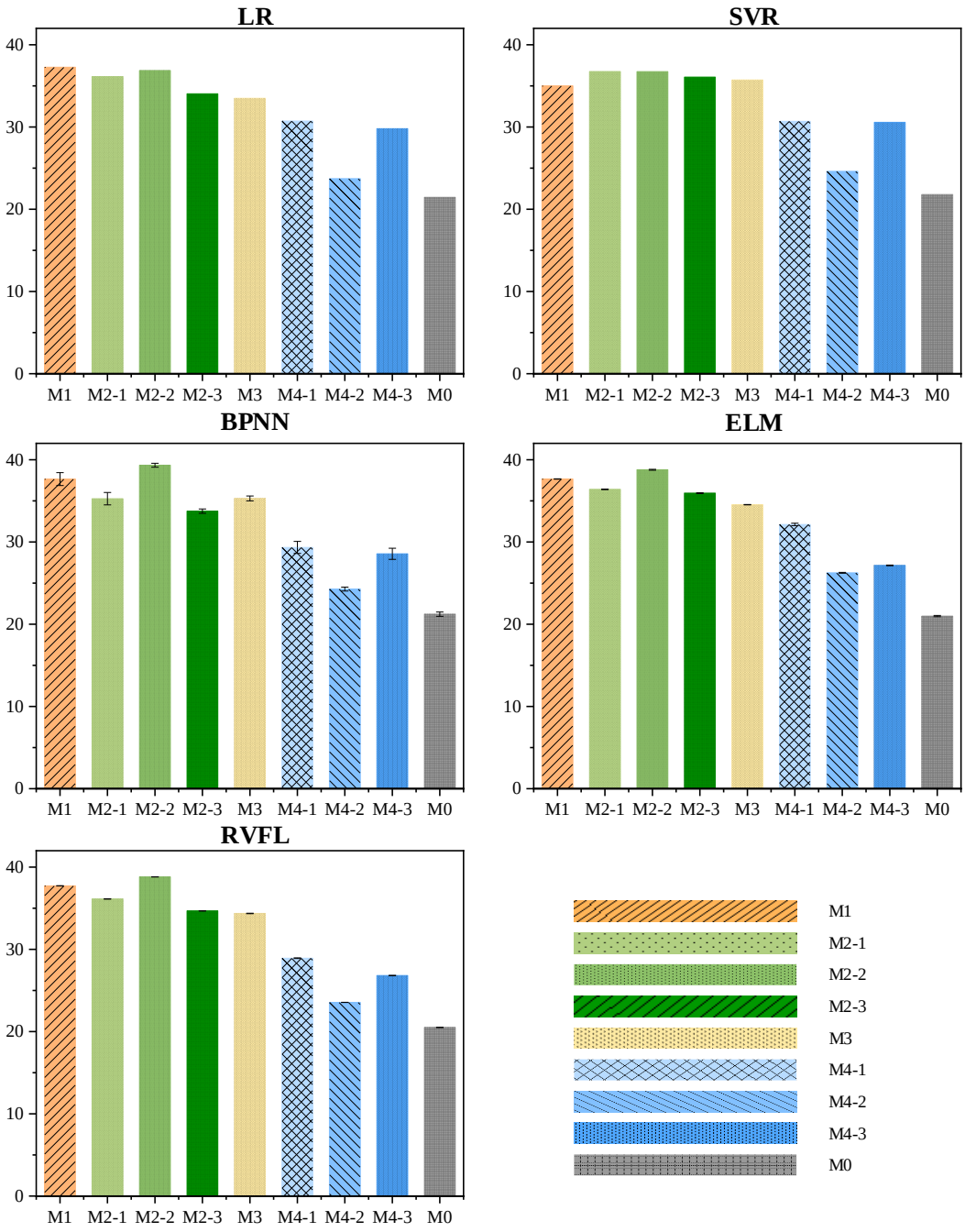

Figure S10 Performance comparison of different learning paradigms in terms of *RMSE* for Beijing (in four-step-ahead prediction).

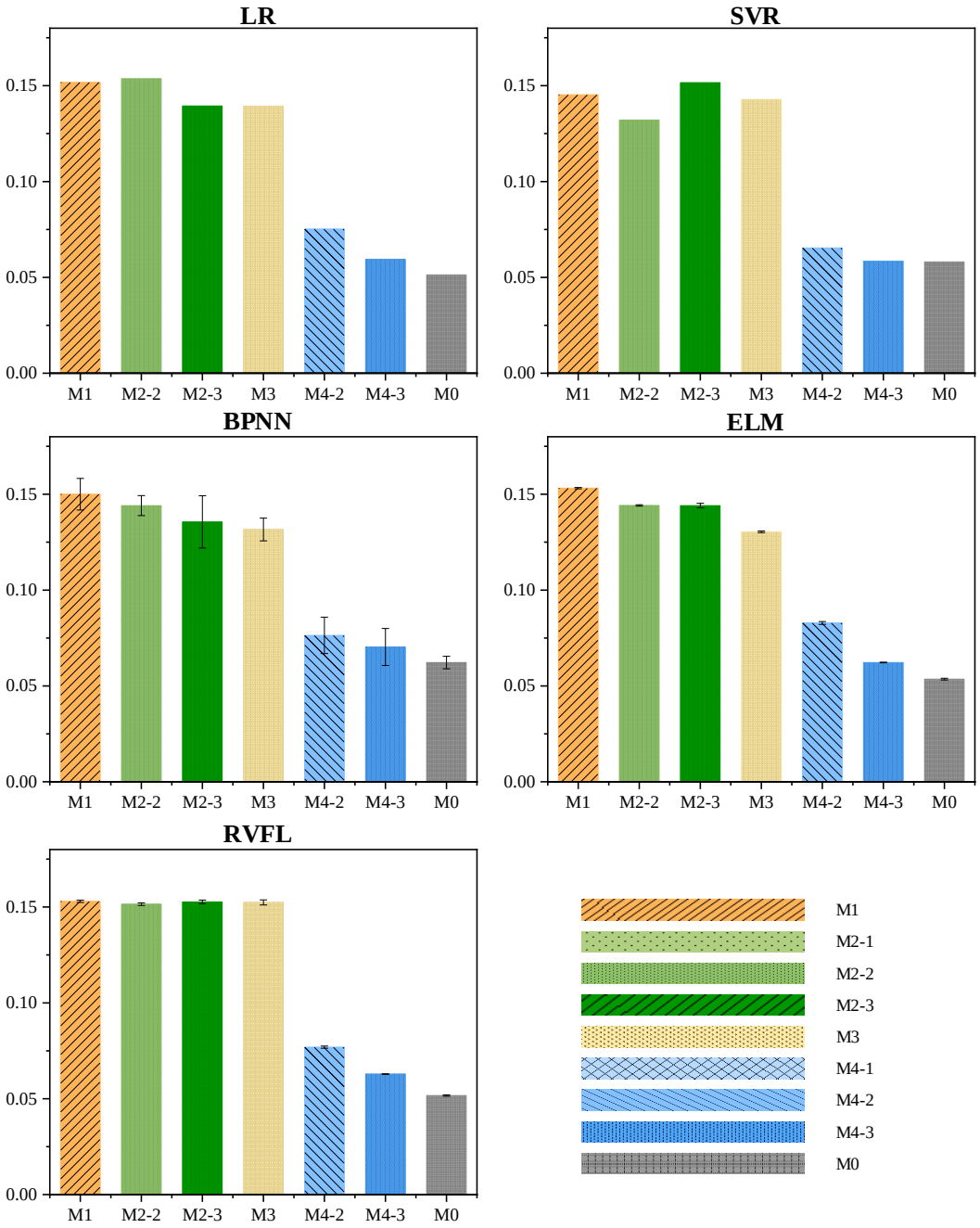

Figure S11 Performance comparison of different learning paradigms in terms of *MAPE* for New Delhi (in one-step-ahead prediction).

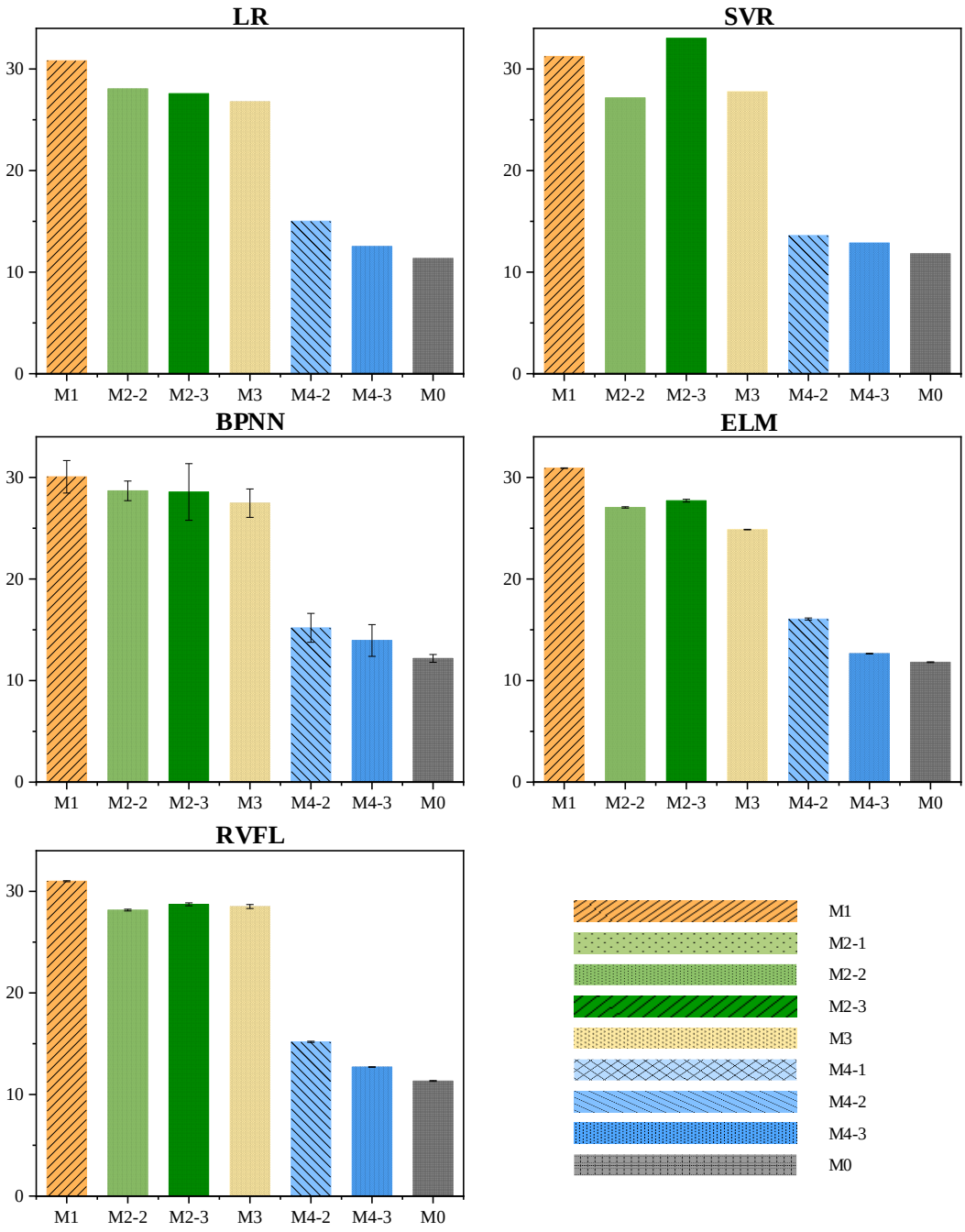

Figure S12 Performance comparison of different learning paradigms in terms of *RMSE* for New Delhi (in one-step-ahead prediction).

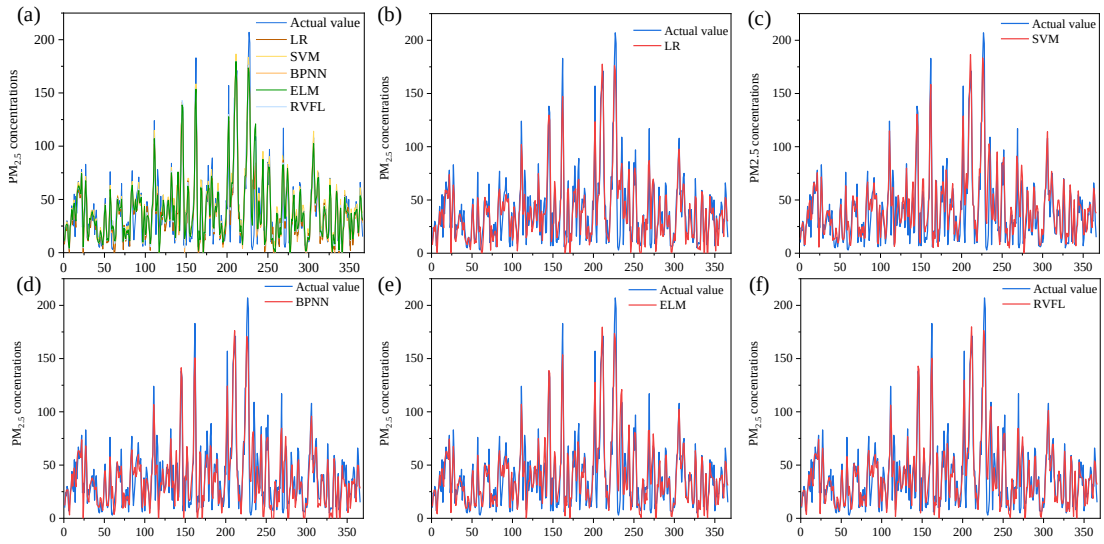

Figure S13 The comparison results of actual values (blue) and prediction values (red) for $PM_{2.5}$ in Beijing.

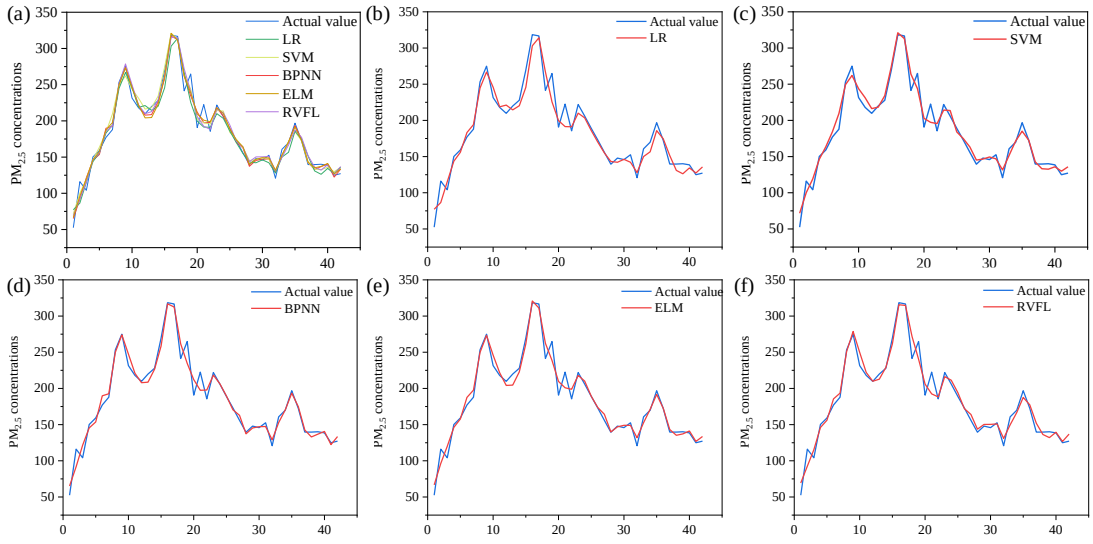

Figure S14 The comparison results of actual values (blue) and prediction values (red) for $PM_{2.5}$ in New Delhi.