Abstract: The aim of this bachelor thesis is to unite the theory about distributed lag models and autoregressive distributed lag model, which includes lagged dependent variables and application of these models on real data. The properties of these models are also presented. Dynamic models are highly used for financial and economic data because of their ability to capture lagged effect on dependent variable. As a similar topic there are mentioned models of intervention analysis which are used to examine the external effects on time series and to model the interventions using indicator variables. Finally, applications of mentioned models on two data sets are introduced and analysis of the effect of coronavirus pandemic on time series is demonstrated.