Nowadays, what has become a subject of frequent discussions is the demographic trend of rapidly aging population, which significantly influences current pension system. Goal of this dissertation, besides description of relevant legislative development in Czech Republic and Poland, is to introduce theoretically possible parameters of regulation before and after pension reform (2013) assuming that rules for retirement at a particular age are valid. This dissertation works with following parameters: retirement age, replacement ratio and pension insurance tariff. Based on these parameters, three different projections have been created and described theoretically possible regulations of specific parameters of pension system while using following indicators: rate of economic dependency, ratio expenses on pension system : GDP and pension insurance tariff.