

Application of Imprecise Probability Methods to the Support of Workforce Managerial Decisions.

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Abstract

Availability and quality of working forces are subject to constant changes. Some of the indicators could be influenced by planner, but most of them are out of control. This opens the strong demand on reliable prediction modeling. Decision maker is interested not only in knowing of supply/demand situation, but also about the proficiency and reliability of employees. Presented work is intended to find out, which imprecise probability methods are suitable for certain aspects of the staff planning process.

General broad modeling of stochastically changing workforce markets numbers could be considered like a description of the random events observation. These events could be categorized and forecasted by the mean of NPI (nonparametric predictive inference) method suggested by Augustin and Coolen [1]. Its capability to learn from multinomial data, especially such as strongly influenced by business environment, geography, state policy, etc., extracted from market reports, and induced from managerial experience seems to be promising.

After demand and supply of workforce is forecasted, manager must start the process of hiring. Individual staff evaluation is also quite challenging because of lack or incorrectness of initial information about possible profile type of the candidate. Dempster-Shafer Theory may be good one, but speaking of “gambles” could disappoint many HR-specialists. So, the Theory of Adaptive Utility developed by Houlding and Coolen [2] is assumed as perspective tool for solving this problem. HR decision maker can also follow this kind of sequential process.

When the completion of team an groups is done, begins the labor activity. Here, each employee demonstrate his performance rate, qualification and reliability. In this case interaction between workers is strongly matters. Conditional probability is in charge of that kind of evaluation and therefore Bayesian schemes and Walley [3] technique are applied. Dismissed employees flowing out of the firm again into workforce market and will be available for another companies, also for competitors ... Feedback to initial step is recommended.

Keywords: Managerial Decisions Support, Adaptive Utility, Predictive Inference, Workforce Planning

References

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