

A TEST OF EXPECTED UTILITY MODEL IN JOB SEARCH BEHAVIOR

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Abstract

Job search behavior is one of the most common processes on the labor market, including behavioral acts of individuals who search for work after graduation, job loss, migration or in order to pursue new job opportunities. The set of decisions that people make during the job searching process is complex and may include several dimensions. One of these dimensions is rationality of job choice and job search behavior. According to many theoretical approaches and models, workers tend to switch between jobs in order to maximize personal gains such as salary, high security, social benefits and career opportunities; minimize possible losses such as probability of job loss, unsecure working conditions, health-related risks. According to many theoretical works, personal preferences are considered to be rational and meet expected utility model conditions in the context of these parameters existing. The article is aimed to test rationality of job search behavior through modeling of job search situations. We tested the degree of rationality of job search behavior on the sample, randomly drawn from undergraduate students in Moscow. Methods of econometric analysis of demonstrated choice behavior were employed.

Key words: job search, job changing behavior, expected utility model, rationality, labor market.

JEL Code: D03, J01, J63, J64

Introduction

Job search behavior is one of the most common and complex activities on labor market. People look for work after graduation from a university; decide to change job maximizing wage or benefits; search local vacancies after relocation to a new community, city or state. Since most of people are involved into this kind of search activity, theory of job search behavior is an emerging research area on the stage of economic analysis. To date, there is a broad amount of empirical and theoretical research works aimed to describe behavior of decision-makers acting on labor markets. The first works in this field were developed as a

compliment to traditional theoretical framework of labor market supply model. But, since such basic economic assumptions about fully informed choice were challenged and have limited ability to model or explain typical job-related experiences of real actors in labor markets, the models explaining how people make decisions concerning job alternatives, unemployment, wage maximizations are of the great interest.

Extensive economic literature presents the general economic approach to the problem, which is based on the Expected Utility Model or its modifications and extensions. The general idea is that the decision-maker (job seeker) tries to maximize his or her utility and rationally sets about the risk (McFadyen, 1997). According to the most canonical formulation of the model, an unemployed individual faces with sequence of job offers. The principal feature of these job offers is wage rate, which is fixed at the moment of decision-making and is randomly drawn from known distribution of wages. Having two options to accept or reject a job offer, the decision maker seeks to maximize his or her lifetime income considering wage rate distribution and costs of rejection of job offers (Mortensen, 1986). As a consequence of search costs (time, resources, rent or reservation wage) no rational individual waits indefinitely for an opportunity to be employed in the best of all jobs from the distribution. To summarize, this class of models postulates a decision problem involving a choice of a strategy for “shopping” and assessing the acceptable wage rate (Stigler, 1962). The active side in this model is job seeker while present of other job seekers; environmental factors and actions of employer are usually ignored.

A model, considering individual’s interactions with external environment in the context of job seeking behavior was proposed by Mobley (Mobley, 1977). He proposed heuristic conceptualization of the possible events leading to voluntary turnover and transition to the job search activity. Briefly, it includes the following variables – intention to search, success or failure of the job search and past experience of job search behavior. While this model concentrates mostly on factors that motivate an employed individual to consider job alternatives, an important question is raised: how job seekers make a decision considering a possible competition with other job seekers. A job offer is not single-directed declaration of wage and benefits from the employer, but also is a “winning” result of previous job-related activity of an individual, including such costly behaviors as education, preparing to the interviews, searching vacancies and contacting employers. Seeking new job opportunities a decision maker needs to consider not only wage rate and costs of rejection of the current offer, but also the probability to be accepted for a desired position. This probability may not be certain and may be an external stochastic variable for the individual, but it is possible to

evaluate it in some degree. For instance, high school students usually evaluate their chances to be admitted by an university using admissions statistics provided by educational institutions. Such parameters as rate of acceptance, average GPA of admitted students, average score of standardized exams or tests are widely used predictors of probability to be admitted.

Do people maximize expected utility choosing between two job offers? According to the canonical formulation of expected utility model rational actors maximize their expected utility, choosing the job offer accosted with the highest product of expected wage rate and probability to be accepted. This article is aimed to evaluate the rationality of job search behavior from the prospective of expected utility model. We used a simple choice task in order to model job search behavior.

1 Expected utility model: theoretical framework

Expected utility theory is a normative approach to a theory about how people make decisions under risk. It considers a decision maker, who is evaluating acts whose outcomes are not certain and depend on some states of the external environment. There are four choice axioms, formulated by Neumann and Morgenstern – transitivity, completeness, independence and continuity of preferences of a rational individual. According to the theory, people make choices based on (a) expected values of each option and (b) utility weighting function that corrects actual choices according the individuals' preferences.

The concept of risk aversion is an important component of the theory. Risk aversion is a tendency of humans to reduce the degree of uncertainty, by choosing more certain options, but leading to possibly lower outcomes. According to many empirical results, people behave in risk-avoiding manner in many real life situations.

2 Method

Task. Participants performed a simple choice task in which they judged their preferences between two job offers. The following parameters were included into the task. First, the expected wage rates – the expected monthly amount of money to be paid after successful employment. No additional benefits, bonuses or wage rate changes were indicated in all job offers. We manipulated wage rates and differences in expected wage between options across trials. The range of wage offerings was between average regional wage (lower boundary) and doubled average regional wage (upper boundary).

The second parameter we manipulated were expected probabilities to be employed on each position. We used a parameter of applications received to the moment from other candidates and overall number of open positions. Ratio of number of open positions and overall number of applications is a measure of probability to be employed to the position (see Figure 1).

Fig. 1: Simple job offer choice task example.



Source: authors

Participants were asked to make a sequence of simple choices between pairs of hypothetical job offers. They were not limited in time to make decisions and following the procedure, pushing the button A or B meant the decision to apply for a respective position. We used 40 independent trials for each participant represented on a computer screen. Eprime 2.0 software was used to present choice options and collect responses of the participants.

Participants. Twenty-six undergraduate students (12 female; mean age 22.4, range 20-24) participated in the experiment. Participants were undergraduate and masters students from Moscow; 56% of the participants have experience of employment; 15% are currently employed full or part-time. Participants engaged in two separate 30 minutes long sessions in which they become familiar with the task and perform the task.

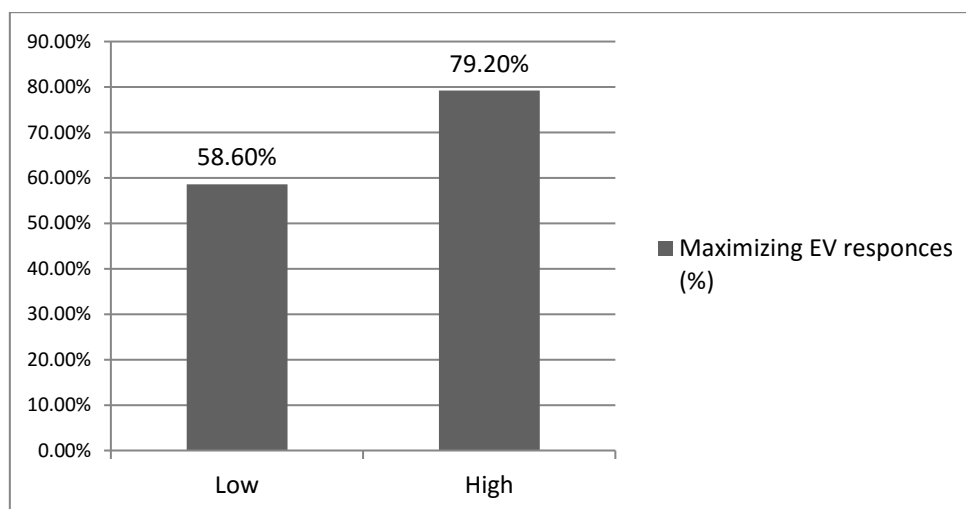
Materials. We used 11 levels of expected wage rate ranging from 1.0 to 2.0 of the regional average and 10 levels of expected probability to be employed that was manipulated by the

number of received applications. The number of received applications ranged from 0 to 120 and was different in each experimental trial.

3 Results

Expected value maximization. First, we tested the maximizing of expected value of presented job offers. Expected value is a product of expected outcome measured by wage rate and probability to “win”, measured by the number of applications received from another job seekers. Since the decision maker has no information about personal characteristics, skills and professional experience of other applicants, it is possible to consider a uniform distribution of chances to be employed for each applicant. Hence, the probability to be accepted is in inverse relation to the overall number of received applications. We used three conditions in order to test maximization of expected value of job offers. Under the first, equal condition, a participant faced with job offers of equal expected value (products of expected wage and probability to be employed are the same). Under the second condition of small difference in expected values of offers participants were presented with options that differ in terms of expected value of job offers in the range from 10% to 100%. The last, high difference condition included paired options that differ in expected value from 100% to 200%. Figure 2 presents the percentage of “correct”, i. e. predicted by the assumption of expected value optimization responses made under low and high difference experimental conditions (under the equal condition participant are predicted to be indifferent between options).

Fig. 2: Percentage of choices maximizing expected value of job offers made under low-difference and high-difference conditions

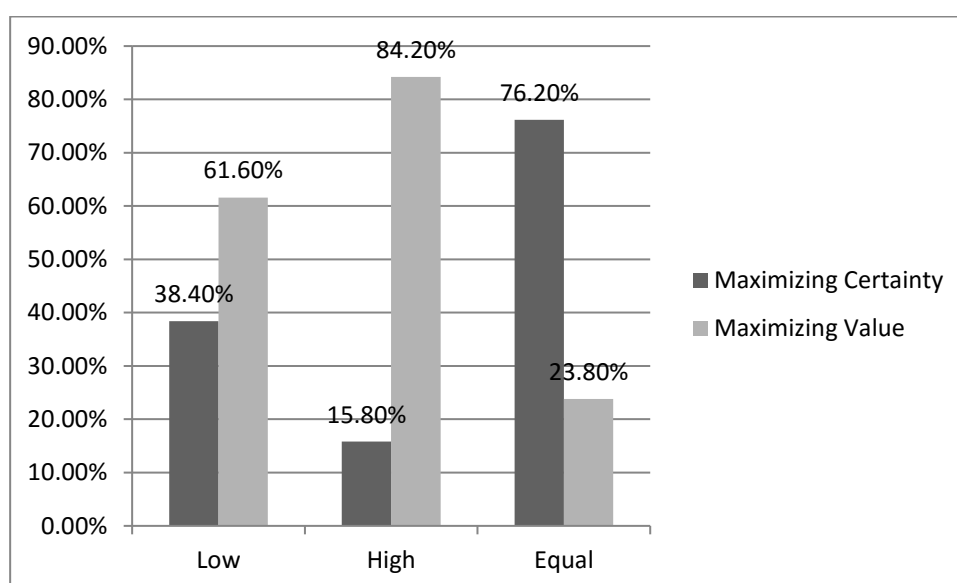


Source: authors

As demonstrated above, most of the participants maximized expected value of job offers depending on wage rate and number of applications in both low-difference and high-difference conditions of the experiment. However, under the low-difference conditions more than one-third of choices did not lead to the maximizing of the expected value; under the high-difference condition more than 20% of choices do not satisfy the hypothesis of maximization. Hence, depending on the difference in objective expected value of job offers, a significant part of job seekers' decisions violate the maximization rule.

Value-certainty preferences. We examined the strategies people use in the trials when they violate prediction of expected value maximization. In order to perform this analysis all the cases of choices inconsistent with the theory were selected. There are two possible strategies (a) to maximize the outcome (wage rate) and ignore low level of certainty to achieve this result or (b) to maximize the degree of certainty by choosing the more certain option ignoring the less certain but much more valuable (see Figure 3).

Fig. 3: Percentage of choices maximizing expected value of job offers made under low-difference and high-difference conditions



Source: authors

Dominating strategies of maximization differ across experimental conditions. The most interesting result is clear dominance of strategy to maximize degree of certainty under the equal expected value condition: more than 75% of choices maximize expected probability to be employed. This result corresponds well with many previous studies of risk aversion and supports the risk aversion hypothesis (people prefer sure outcomes to higher, but less certain

alternatives). While under the equal condition most of the participants demonstrated risk aversion, differences in expected values of the options shift preferences towards risk-seeking behavior; under the low difference condition more than 60% of participants violating the maximization of expected value demonstrated risk seeking; under the high difference condition more than 80% of choices that do not maximize expected value were also risky.

Conclusion (Times New Roman, 14 pt., bold)

Our data inform and extend the previous findings in several ways. First, we find, that job-seeking behavior may be predicted by expected utility model with quite high degree of accuracy. Depending on objective difference in expected values of job offers, from 60% to 80% of choices support the prediction of maximization of expected value. Second, risk aversion hypothesis was also demonstrated under the equal expected value condition: facing with two similar in terms of expected value options, people tend to avoid risky behavior and choose more certain option. But, in the case when the difference is significant the strategy of maximization of the possible outcome dominates if the rule of expected value maximization is violated.

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