Economics of Information, Cost of Skill, and Job Search

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In 1970, J.J McCall came up with the job search model. The model provides the relationship between the cost of job search and the value of the offer. According to the model, the job seekers set a single critical number for the offer and would reject every possible offer below the critical number. However, In this paper, I show that this position is not compatible for those job seekers who take loan for the enhancing the skills and has no unemployments benefits. The individual set a critical number such that after deducting the loan payment amount and the cost of search, he should have left with some positive amount. But if the employment does not commerce before the loan payment begins than he accepts the employment below the critical value. This paper provides the relationship between the cost of job search, cost of skills, and the subsequent decision for the job seeker.

I develop the model which explains that the job seekers might accept the offers below the critical number. There is the number of factors which support this position i.e firstly, suppose the individual take loan to enhance the skill and during the initial period of job search, the job seeker set a critical number for the offers. But over the period of time if the employment does not commerce above the critical value then the burden of loan payment will add to the cost of job search which therefore force the individual to accept the offers below the critical value. The second factor is the lack of unemployment benefits which force the individual to consider the offer below the critical value.

Further, I present the model

$$f = U_B + X_N - cN - c^*[1] \quad \text{where } c^* = \sum_{a=0}^{t} C_a/(1+i)^a$$

UB = Unemployment benefits which are fixed and positive during the period of unemployment, and zero when the employment commerce,
c = cost of period of search,
c* = cost of skills,
X = a random variable denoting the job offer,

[1] The job offer which is also know as wage should be interpreted as the discounting expected value of a particular employment opportunity. The other costs will also be discounted

$\Phi(x)$ = probability density function of x,
f(x) = maximum return when the job offer X has been attained,

The above model present that if the process terminates at the point where the employment occurs after Nth offer than the individual would get the return f, which is the value of Nth offer i.e XN minus the cost of search, c , time the number of job offer, N , and the cost of generating skill, c^*. UB is zero because the person is employed. In Ca where a=0 represent the time period when the cost of loan payment has not started but over the period of time the cost of loan payment begin and will reduce the return.

Suppose that X, the job offer is observed at the first period and the process of job search will continue and the subsequent return will be;

$$f(x) = -(c + c^*) + \max [x, E(f(x))]$$

Let z = E(f(x)), it is clear from the equation that the optimal policy can be of the form;

only for those job seekers who have unemployment benefits and no loan burden

Continue searching (UB is positive) if x <z
Accept employment (UB is zero) if if x≥z

The case for the individual having no unemployment benefits and burden of loan payment is different. For these individuals, the UB is zero. The individual will accept the offer at the point where x≥z only if the employment will commence before the beginning of loan payment. But if the process of job search continues after the loan payment begins, then the individual will accept the offer where x<z.

The conditional expected value E(f/N) i.e the expected value of the return given the searchers accept the Nth offer where z is obtained by expecting out N.

E(f/N) = E(XN /N) - cN - c*

there after

E(f/N) = E(XN /N) - cE(N) - c* = z

Notice that for the individual with no unemployment benefits,

$$E(X_N/N) = E(X_N \mid X_N \geq z, X_{N-1} < z, \ldots, X_1 < z)$$

That is, the employment will commence with the Nth offer only if XN ≥z and all previous offers have been less than z and hence therefore rejected. But this situation is possible only if employment will commence before the beginning of loan payment.

Therefore, by the assumption that offers are independent,

$$E(X_N / X_N \geq z) = E(X_N \mid X_N \geq z, X_{N-1} < z, \ldots, X_1 < z)$$

And by the assumption that the offers are identically distributed

$$E(X_N / X_N \geq z) = E(X / X \geq z)$$

is valid only if employment will commerce before the beginning of loan payment. Because thereafter the individual will accept the offer x<z which could be in the range from XN-1 till X1. Finally, the return is

$$E(X_N / X_N \geq z) = \int_z^{\infty} (X\ \Phi(x)\, dx / P(X \geq z)) \text{ and,}$$

$$Z = \int_z^{\infty} (X\ \Phi(x)\, dx / P(X \geq z)) - cE(N) - c^{*}[2]$$

where, the term E(N) is the expected waiting time until employment occurs.

$$E(N) = 1/P,\ P > 0$$

Using this model I conclude, that the individual with no unemployment benefits and burden of loan payment will have relatively higher return only if employment will commence before the beginning of loan payment where $X \geq z$ and the expected waiting time is low. However, If job search continues after the start of loan payment, then the individual will accept the offer x<z and that offer might give negative return to the individual because at this offer the cost of search, expected waiting time, and the cost of loan is high.

[2] Z is the return when the employment is observed and the first part on the right hand side is the expected return from continuing and second and third part is the cost of search and cost of skills.