# Reservation Wage for High Skilled Graduates in Bangladesh: Preliminary Factors

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**Abstract**

This paper preliminarily discusses about the determinants of reservation wage for graduates in Bangladesh. The researchers discussed several models in order to identify the common factors which determine the reservation wage of the tertiary graduates in Bangladesh. All these models are multiple linear regression models. Data was collected on both employed and unemployed individuals across the country who graduated from different private and public universities. Initially the researchers investigated the following factors: socio-economic status (Parental income), selection of occupation, duration of unemployment, difference between actual and reservation wage, managerial level of job, sources of different media of job applications (both formal and informal) and in the revised phase of the model the researchers discovered that that inclusion of 'previous working experience' made a significant difference in the relationship among dependent and independent variables. One noticeable difference in the findings of the current researchers compared to those who worked on the same topic earlier was: positive relationship between duration of unemployment and reservation price of the graduates. The researchers further explored reasons of this above result theoretically. Finally, the researchers accepted the following variables (rejected as null hypothesis) as significant factors (Socio-economic background, difference between actual salary and reservation price, managerial level of job, media of job applications in terms of formal or informal, previous working experience) to influence the graduate reservation wage in Bangladesh (in the alternatives). Additionally, the researchers also explained why' duration of unemployment' was not selected as a crucial determinant in the current paper. Finally the researchers prescribed some positive solutions on how firms in Bangladesh could deal with the increasing demand of wage premiums from high skilled graduates and what the possible consequences are if they failed to do so.

**Keywords:** reservation wage, actual wage, parental income, job media, duration of unemployment

## 1. Introduction

Graduate employment is at the center of attention among many economists in the recent time. Critics claim different views for massive unemployment among the graduates. Some authors blame the supply side (skill gap in the labor market and lack of compliance in skill development by the educational institutes) while others perceive demand side as major responsible factor (lack of job creations and vacancy announcements by the firms for high skilled graduates). In the current paper the authors focused basically on the demand side of unemployment as 'determinants of reservation wage for the high skilled graduates' and factors like 'absence of wage premium' seemed a vital issue within the current context. Wage is an important factor for educated workers. People educate themselves in order to generate a higher return in the labor market compared to non-educated workers and if for some reason wage return from a given job doesn't exceed the opportunity cost (sacrifice labor earnings during the education life and job searching period), one may be potentially discouraged to attend a formal job. Reservation wage precisely describes the level of minimum monthly wage at which someone is willing to work. Nakata and Chowdhury (2019) found that college graduates are somewhat sensitive to adjust their wage expectation as a part of the whole job search strategy, which to some extent influences their job application outcomes. Ibid (2019) also describe that gender, occupational category, and methods of finding a job, level of education, skills, work experience and socio-economic background are the major associated factors to decide the level of reservation wage for a graduate. Opehm, Hartog and Berkhout (2011) distinguished between

starting wage and reservation wage who found a remarkable difference between the two on the context of the Dutch graduates. Authors like Heath and Swann (1999); Brown and Taylor (2009) who investigated the empirical relationship among duration of unemployment, reservation wage and wage expectation also found the same. In the current research, the authors are willing to see what factors preliminarily determine the reservation wage of graduates in Bangladesh. The researchers will be conducting a brief investigation on the following factors: duration of unemployment spells, difference between reservation wage and actual wage offer, level of occupation, socio-economic background (Parental income), and job media by collecting primary data with the help of a local research firm. The research will be quantitative in nature. Regression techniques are deployed to build the empirical models. Convenient and judgmental sampling techniques are used among both employed and unemployed graduates across the country on a random basis (Those who have graduated by 2016). The authors remain highly susceptible to the fact that the presence of unrealistic expectation among the graduates and a non-rational wage premium offered by firms might have led to a high level of unemployment in the country.

## 2. Objective of the Study

### GENERAL OBJECTIVES:

To determine what are the major factors to determine the graduate reservation wage.

### SPECIFIC OBJECTIVES:

To identify whether these factors are as follows: socio-economic status (parental income), level of occupation, difference between potential wage offer and reservation wage, duration of unemployment, managerial level of jobs and selection of job media.

## 3. Literature Review

Brown and Taylor (2009) believe that the reservation wage is the lowest salary that encourages a graduate to attend a formal job and it is a very important factor in labor economics. Based on the findings of Ibid (2009) reservation wage is a key issue while one attempts to analyze factors such as job search, job supply and degree of job market participation (Mortensen, 1986, Mortensen and Pissarides, 1999, and Pissarides, 2000 cited via Ibid, 1999). According to Ibid (2009) there is plenty of literature available on role of reservation wage that possibly sets the relationship between a graduate's job qualification and his unemployment spell. Additionally, policy makers in the labor market also play an important role in this area by controlling the wage floor. Analyzing the above evidences, the authors reach to this conclusion that reservation wage is a crucial factor to analyze the perspective of graduate employment and it might be decided by many factors directly or indirectly via external labor market conditions. Ibid (2009) further claims many empirical evidences indicate a positive association between reservation wages and duration of unemployment as theories of job searching also suggest the same – a higher reservation wage may dictate a longer spell of unemployment. Finally, Kiefer and Neumann (1979) cited via Ibid (2009) indicate that information availability on reservation wage of individuals might be limited. Ibid (2009) also argues that there is a possibility of a reverse casualty in the above settings: reservation wages may dictate the spell of unemployment but at the same time an extended length of the spell of unemployment might also reduce someone's reservation wage. Ahn and Hamilton (2016) claim that theory of duration dependency implies a longer spell of unemployment that is likely to minimize the possibility of someone to get a suitable job any sooner. However, according to Ibid (2016) duration dependency might be revolved around two factors: a genuine or positive duration dependency and negative duration dependency. Individuals may search less if they have been unemployed for longer period of time; these individuals tend to compromise their salary position in order to re-enter the labor market (Ibid, 2016). One may define the above as 'motivational effect' arising from positive genuine duration dependence (Ibid, 2016). On the other hands, a longer period spent in unemployment directly reduces the probability of finding a new job and given the candidate is no longer in a position to negotiate his desired salary , he might choose to exit the labor market. This is known as "unemployment scarring" effect arising from negative genuine duration dependence (Ibid, 2016). Precisely, there is a strong possibility that the longer somebody has been unemployed, the more willing that person will be to accept a low-pay job. Considering the above literature one may certainly agree duration of unemployment is an important factor to reshape and to revitalize the graduate reservation wage. Heath and Swann (1999) provides a little contradictory view on the above issue who suggest based on the evidences from Australian context, reservation wage is not associated with the duration of unemployment. Pissarides (2000) who analyzed on theories of unemployment equilibrium claimed that a person who is unemployed may reject or accept a job as he tries to negotiate ongoing wage rate from market point of view for a given or particular category of job in an industry where as from firm's point of view on wage offer depends on the anticipated productivity, thus, matching between the two decide the level of potential wage offer. Additionally, in cases like the above the reported

reservation wage might be higher or lower than his actual salary depending upon his present economic situation and perception of the employers (Walker, 2003). Ibid (2000) also finds that a worker always accepts the job whenever the wage offer is above his reservation wage and his transition from unemployment to employment is statistically associated with it as wage offers, involving a poisson distribution of range of worker's anticipated future returns future job offers exceeding the cost of job searching in present discounted value term. On the other hand, a worker may accept a job at a lower wage that is below his reservation price after analyzing the value of taking up a job offer at the current moment, value of searching jobs in unemployment situation as well as value of staying out of the labor market (and this might include: the current value of his economic role in the household or in the labor market) (Walker, 2003). Going through the above literature, one must agree that difference between actual and reservation wage is a primary factor that decides the future reservation price. Further, both firms and graduates are involved in a matching process that determines the efficiency of hiring (matching function) and reservation wage is just a partial component of the whole process. Heath and Swann (1999) believe that factors such as age, past working experiences, educational attainment and ongoing rate of minimum wage are more important factors for the rate of job arrivals for a graduate and literally most of the workers have a level of reservation that lies below the accepted minimum wage rate of the market. From this evidence, one may conclude that the substantial variation between reservation price and legal minimum wage can be related to many such factors which are mentioned above. In the current sense one might treat a 'higher legal minimum' in any given category of occupation as actual wage - an offer for high skilled graduate that includes a premium. Ibid (1999) finally agrees with the view that reservation wage still plays the central role in most of the job search theories. Therefore, authors in the current research explore further to identify other related factors which might influence not only the graduate reservation wage but also their potential difference with actual salaries. Evidences from Nakata and Chowdhury (2019) found that parental education that represents socioeconomic status of the graduates have something to do with labor market outcomes for graduates because students with a higher socioeconomic status have a lesser possibility of being employed any time soon following the completition of their graduation as they are always in a better economic position who exert the maximum afford to extend the job searching periods and as a result, these candidates possess a higher reservation price. Additionally, based on the findings of Pissarides (2000) people who continue to search for a longer period, it may happen as firm's offer do not match their level of expectation and their elaborated spell of unemployment duration might be defined as voluntary. Reviewing the above evidence, one may certainly reach to this conclusion that socio-economic background such as parental education and economic position (monthly income) might influence the graduate reservation price because different graduates who are coming from different levels of socio-economic backgrounds, they can afford to sustain different length of unemployment spells and reserve different reservation prices accordingly. Sarah and Brown (2009) who examined the relationship between reservation wage, wage expectation and duration of unemployment found that the extent to which external factors influence one's perception on future financial position (such as level of family tax credit on earnings) significantly influence their current reservation wage. This supports the above view that both present and future economic position of the family is important in deciding what reservation price an individual will choose. Chowdhury and Nakata (2019) believe that the level of wage among the graduates seem only reasonable when they go into a managerial level of occupations. The above research further found that in managerial and professional jobs female graduates can earn relatively higher than the males (Ibid, 2019). According to the theory of 'compensation management' also, pay structure may vary according to different managerial levels of jobs or occupations and these differences are associated with the extent to which organizations value a designated level of occupation internally (Rai University, n.d.). Ibid (2019) agrees that graduate salary may significantly vary according to type and size of job contracts. However, none of these literatures do no clearly specify if different managerial levels of an occupation (where graduates prefer to apply or are currently employed) make a significant difference in the reservation price of graduates applying for these jobs. The researchers after reviewing such incidences which were described by Ibid (2019) believe that the differences in the managerial level of occupations which graduates are applying for can make a remarkable difference in their reservation price. For example, a graduate applying for an entry-level position is not going to have the same reservation as the one who is applying at mid or top level management. According to the authors, the former possibly reserve a much higher price. The authors further believe that graduates who receive additional compensation packages or premium offers like stocks, profit sharing might have the lowest job turnover; leading to a low rate of frictional unemployment for high skilled graduates. Literature from Rai University on 'compensation management' and Arul (n.d) clearly support such payment policies. Hliger, Nordman and Sarr (2018) found that wage return for graduates may differ by the type job channels through which they apply – can be either formal or informal: graduates who are hired through formal channels benefit from higher wage returns including premiums and those

who are hired through unofficial networks may also a enjoy higher wage but there are substantial variation between the two groups in terms of their skill evaluation based on the personal attributes. Additionally, employment outcomes are delivered in form of reward or punishment differently for these two groups of employees. So, the researchers believe reservation price of these graduates may also vary accordingly. Nakata and Chowdhury, finally (2019) discovers in their findings that half of the employed graduates use informal personal or family networks in Bangladesh - consisting of family, relatives, or friends to find jobs where as formal job media like advertisements published in print media is the second most successfully utilized source of finding a job. Ibid (2019) also reveals that academic departments of graduates have the least contribution in graduate employment in our country and institutions at the national college level offer no job placement services yet. It was further found that a higher proportion of female graduates seek jobs through competitive or formal selection channels whereas majority among the male graduates rely more on personal connections (Ibid, 2019). Combing all these evidences, the researchers have a strong reason to believe that different sources or media of job applications or selection channels through which graduates are hired either formally or informally may lead to a significant variation in their reservation price. After critically examining all of the above factors, the authors have decided to evaluate the following variables as relevant determinants for graduate reservation wage in Bangladesh: socio-economic status of the graduate (parental income), differences between actual and reservation wage, duration of unemployment, different managerial levels of an occupation and selection of job application media. The authors also believe that reservation wage might be modified over the due course of time based on the market information received by a graduate as the figures may revitalize. Nakata and Chowdhury (2019) believe that graduates in order to conclude their job searching process successfully must have expectations which adjust to the job market reality.

## 4. Problem Statement

Samuelson and Nordhaus (2010) describe that disequilibrium in a labor market occurs either when there is a mismatch between labor demand and labor supply due to skill gap or on the occassions as firms try to improve their production process. Further, also when there is a falling employment elasticity of such additional production investments (bhattacharya, 2018). Additionally, Ibid (2010) believes structural unemployment arises in situations when real wage index gets higher than the market clearing wage but in such situations a major fraction of the skilled labor force might become unemployed (Ibid, 2010). The researchers also believe that the structual changes which Bangladeshi economy is currently experiencing include firms which can affrod to hire only up to a level where marginal product of their labor is just equaled to the cost of hiring many qualified graduates. Rest among them (qualified graduates) may remain unemployed either due to skill shortage or due to lack of skill premiums or supply of vacancies offered by these firms. Precisely, tertiary gradautes who are unable to supply the most required skills needed by the current nature of job markets and wage premiums (for high skilled workers) offered by the firms may lead to a mismatch of demand and supply of skills, disequilibrium shall occur in such economies with on going structural changes and skilled workers may remain unemployed. It is not uncommon that workers with additional level of education will always demand for additional wage premiums (Accinelli and Carrerra, 2015).

Findings from Ibid (2010) reveals during the time of structural changes in an economy, there is 'a fraction' of the total labor force who remain voluntarily unemployed (those who are looking for a better job, switching from old to new positions) and these may give to rise to frictional unemployment. Economy of Bangladesh is certainly experiencing a structural change (Bhattachariya, 2018) but also, there might be some people who remain voluntarily unemployed because they are unwilling to accept a formal job at a given market clearning wage rate, they have the required skills and they posses a better or alternative oppurtunity such as net wealth benefits that exceeds the net wage benefits, chances to persue higher education or immigration abroad etc. It is to be noted that workers always seek for net wage benefits to maximize their objective functions during a matching process (Pissarides (2000) cited via King, Montenegro and Orazem (2010).

According to the authors, these are situations when employers must emphasize on the role of reservation wage. Wage expectations from high skilled graduates have a decision making process that considers time which is spent outside the labor market and it has a definite value. Time spent on education and training or time spent on other activities (formal labor) may be tied up with other policies such as unemployment benefits or earning sources available other than doing a formal job (Ibid, 2010). In a nutshell, when an economy requires much more balanced and diversified growth, it requires not only plentiful supply of skilled graduates with simultaneous increase in supply of vacancies including additional wage premiums to compensate such skills. Additionally, an increase in number of innovative firms which are able to raise the productivity and generate a surplus level of profitability in order to compensate for such additional wage premiums is also required. The authors firmly

believe that in absence of such balanced economic growth one might see a significant rise of unemployed graduates due to mismatch between demand and supply of skills and reservation wage is one among many factors to influence the above process (which is of course a demand side factor for skilled workers). To support the notion one might refer to the following situation: unemployment rate, for instance, among the university graduates in a developing country might increase significantly when the opportunities for them to migrate outside the domestic labor market are increasing and there is a consistent pattern of wage gap between the host and the home nation (Stark and Fan, 2007).

Above is a problem that may persist and requires a reasonable attention from the economists in order to sustain a prevailing rate of employment rate among the graduates. Based on the opinions of Ophem, Berkhout and Hartog (2011) a proper functioning of the labor market with equal distribution of wage offers among the skilled workers and a perfect market information among the graduates and employers on such wage offers are also important. Because whenever there is an information gap in in terms of perceived graduate productivity, wage offers or skill signaling on behalf of the job candidates, it may cause enormous damage to both parties. Ibid (2011) believes that an expected value of the gap between market wage and reservation wage has a central role to play in this process. According to Ibid (2011) this kind of gap depends on the probability of obtaining a wage offer above the reservation wage and the conditional expectation of the difference between market wage and wage premium for higher skills. Ibid (2011) further suggests that a 'search theory' always entails the idea that an individual will set their reservation wage in response to their perception of the market and one may expect that the reservation wage and market wage will move in the same direction (in tandem) and any variation in the difference between the two have a meaningful implication for the economists. Fonseca, Gallipoli and Levi (2016) also hold the opinion that while one considers the relationship between wage and unemployment rate, reservation wage remains a vital factor both before and after a graduate becomes employed. Koenig, Manning and Petrongolo (2017) believe that reservation wage varies according to backward and forward looking expectations which involve time before and after a graduate starts working for a firm. These literatures repeatedly show the importance of reservation wage in the labor market. Further, one must learn that information on 'efficient wage level' in any given occupation is only perfectly known when firms are completely aware about the graduate's internal productivity and graduates are complete aware about firm's nature of economic position (Jones and Jones , 2004). Thus the researcher formulates the following research problem:

'Difference between actual and reservation wage and other wage relevant factors such as socio-economic position, managerial level of occupation, duration of unemployment and sources of job media application are the most important factors to consider the graduate reservation wage – and a wage offer above the reservation price is a pivotal condition for the supply of skilled graduates'.

## 5. Research Question

A. What are the preliminary factors to decide a graduate's reservation wage in Bangladesh?

Hypothesis

Null: Reservation wage is not determined by the following factors: (I) Source of job application (II) Parental income (III) Selection of occupation (IV) Difference between actual wage offers by the firms and current reservation price (V) Duration of unemployment

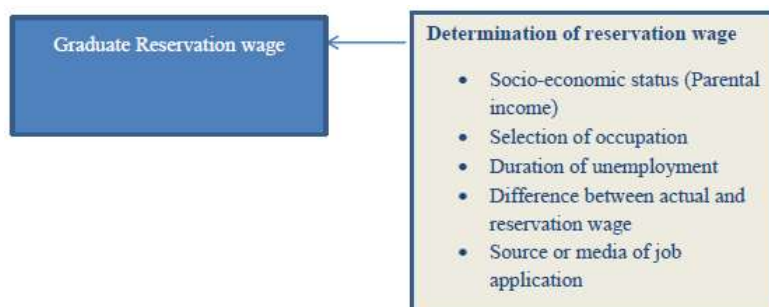Alternative: Reservation wage is determined by the following factors: (I) Source of job application (II) Parental income (III) Selection of occupation (IV) Difference between actual wage offers by the firms and current reservation price (V) Duration of unemployment

## 6. Methodology

(a) Conceptual framework

Based on Nakata and Chowdhury (2019); Ophem, Hartog, Berkhout (2011); Brown and Taylor (2014)

(b) Research gaps:

Most of the authors who emphasized on reservation wage either focused on the complex econometric functions of job search theories or matching process or unemployment duration or tried to distinguish the ideas in terms of the following: reservation wage, actual wage (starting wage in another term) or wage expectation Nakata and Chowdhury (2019); Ophem, Hartog, Berkhout (2011); Brown and Taylor (2014). Nakata and Chowdhury (2019) who mentioned about socio-economic backgrounds of the graduates from colleges under national universities actually focused on overall graduate wage. Ibid (2011) explored on the difference between reservation wage and starting wage of Dutch graduates. Lancaster and Chesher (1983) earlier developed a research work on econometric analysis of reservation wage didn't consider any special group of workers like university graduates only. Rather they focused on more complex issues such as policy parameters and optimal job search model on unemployed people in regard to their asking wage and expected wage. Prasad (2003) worked on the macroeconomic factors such as aggregate and local unemployment rate, length of unemployment or alternative income sources. Heath and Swann (1999, 2002) focused only on Australian job seekers who believe that a legal minimum wage was more important than the reservation wage. Finally, Brown and Taylor (2009; 2013) mostly focused on the relationship between unemployment duration and reservation wage. Finally, the researchers found very few or no significant literal evidences which attempt to determine the factors influencing the graduate reservation wage in Bangladesh. So the current research model will be working on three new dimensions: Adding the existing factors of graduate reservation wage which are mentioned by the earlier researchers to new factors like managerial levels of occupations, difference in actual and reservation wage in monetary terms (by dividing the sample into two groups – employed and unemployed where potential wage offers in a given interview for presently unemployed individuals will be used as a reference indicator for actual salary), all these factors will be considered for Bangladeshi graduates, implication of reservation wage in formulating wage premiums to ensure the supply of high skilled graduates in Bangladeshi labor market. One must also note that the wage data in the current research is examined on monthly basis and they were not converted to a semi-log form because of the possible negative differences between actual and reservation wage.

*6.1 Empirical Framework*

Model: Classical linear regression model that explores on the determinants of reservation wage of a graduate

Reservation wage = R$w$ = $f$ (Parental income, selection of occupation (managerial level), difference between actual and reservation price, duration of unemployment, different sources of job media)

That is, R$w$ = $f$ (PI, O, DIFF, DUR, MED)

Parental income *(PI)*, preferred level of occupation (O), Potential difference between actual wage offer and level of reservation wage (DIFF); Duration of unemployment (DUR), Media or Source of Job application (MED)

Where, DIFF = (A$w$ − R$w$) = Difference between actual/present salary and reservation wage.

Where, A$w$ = Actual wage offer received.

(1) Highest/maximum potential wage offer in given interviews for unemployed graduates (based on their past job interview profiles)

(2) Monthly salary of the graduates who are presently employed

According to standard economic theory, only in a situation that includes the condition of (A$w$- R$w$ $\geq$ 0), a graduate is expected to be employed otherwise to remain unemployed. Precisely, A$w$ must be $\geq$ R$w$ in order to accept a formal job. However, any negative difference is an exception to the above assumption and considered to be a part of the normal distribution of the variable component 'DIFF' in the present research by the current authors.

*6.2 Research Design/Method*

The research will deploy a mixed technique (both quantitative and qualitative in nature). It will be 'Exploratory' type of research that involves 'survey research design'. This design uses a method of questionnaire instrument (both open and close ended questions) as research tools (Akanda, 2018; Kothari and Garg, 2018).

*6.3 Sampling*

The research includes the following – 'Convenience sampling' which is a type of non-probability sampling that involves the idea that a sample is being drawn from that part of the population that is close to hand and 'Judgment non-probability sampling' technique involves selection of sample units based on the existing

knowledge or professional judgment of the researcher (Etikan, 2016). Total estimated sample size is: 250. Estimation of sample size is based on a proportion of the whole population universe (Graduates in different cities across the country who completed a minimum bachelor degree since 2016) in different categories of academic institutions such as technical, general or science institutes, located only in Dhaka City. The formula for estimating the sample size that is used by the researchers is

n = ($Z^2 * \sigma^2$)/ $E^2$ where, n = required sample size, $\sigma$ = population standard deviation, E= a degree of precision required by the researcher. In the above formula, 'Z' is a value associated with the degrees of confidence selected (Say, 0.90 will deliver a score of 1.645) (Ibid, 2018). Further, E = +(-) 0.25 is set by the researcher as margin of error (Akanda, 2018). Techniques of 'convenience or judgment' sampling in education and labor economics are also supported by Kothari and Gar (2017). Based on the data indicating a 'total proportion of both male and female tertiary enrollments' (in the year 2012) which are converted to a 'round figure of hundreds' (considering the time frame of the research) from millions and the researcher presumes almost two-third of them have already completed their 'bachelor degrees' (ESA - Education Sector Analysis, Global Partnership for Education, 2020 on tertiary enrollments, 2020). Finally, the researcher identifies the range of standard deviation of the average enrollment (in the tertiary sector, in the year 2012) figure (converted to hundreds) of those who are expected to graduate within 2016, which is 29.54

So, If $\sigma$ = 29.54 (deviation with respect to the enrollments in other admission years – selected ten admission years)

E = 9.48

Z = 1.96 at 95% confidence level

n = {$Z^2 * \sigma^2$}/E $^2$= {29.54 $^2$*1.96 $^2$/0.25 $^2$} = 3.8416*873/0.0625 = 53,634/1000 = (53*5) = 265+ is the minimum sample size, however, a unit of 250 samples are considered for the current research based on time constraints.

The researcher will categorize the academic disciplines as follows: (1) Humanities and Arts, Social Science, (2) Business; (3) Science & Engineering; (4) Agriculture, Biotechnology and Health, and (5) Others (Mahmood, Islam, Shaahana and Ferdous, 2018). The researcher will categorize the occupations in terms of different sectors and industries based on the classification that is provided by Johnes and Johnes (2004) from USA current population survey to re-apply them in the context of local labor market in Bangladesh. Finally, the researcher will also categorize the information of the household heads of selected graduates in the following manner:

Table I. Income Categories of Parents

| Income (Monthly) | Occupation | Education |
|---|---|---|
| 10,000-30,000 | Government Service | Illiterate |
| 30,000-50,000 | Private jobs | Less than primary |
| 50,000-70,000 | Business/self-employed | Primary plus |
| 70,000-90,000 | Unemployed | Secondary plus |
| 90,000-1,10,000 | Single parents | Tertiary plus |
| Above 1,10,000 | No parents | |

Source: Osmani, Ahmed, Latif and Sen, 2015; Jalil (2016)

*6.4 Research Tools*

A self-administered research questionnaire that contained both valid and reliable items was used by the researcher. It included both open and close ended questions (Ibid, 2018). Inter-rater validity was checked by referring to authors who used such questions in evaluating employment of the graduates in their assessments (ibid, 2018) like distinguishing terms to describe actual and reservation wage, formal or informal hiring channels and different sources or media of job applications or ranges of different income groups which are described in the qualitative or quantitative literature. On the other hand, it may be also referred as 'consensual validity' (Ibid, 2018). The researchers added items on the industrial occupational categories which are collected by Johnes and Johnes (2004) from an originally sourced data that is provided by United States Census Bureau with the purpose of CPS (Current population survey). Based on the findings of US census Bureau these above items have the highest response rates among different survey experts who conduct government household surveyors around the globe
(https://www.census.gov/programs-surveys/cps/technical-documentation/methodology/industry-and-occupation-classification.html), therefore, applied within the current context of Bangladeshi labor market. Reliability of questionnaire items on categorical options was checked based on 'Cronbach's alpha scores'.

*6.5 Data Procedure*

6.5.1 Data Collection

A professional research management team that is personally hired by the researchers collected the primary data. Primary data will constitute information collected by the researcher himself that has never existed before (Akanda, 2018). Additionally, secondary data will be used in order to collect information on true population characteristics (Ibid, 2018).

6.5.2 Techniques of Data Collection

The research team used several techniques in order to collect the data:

- Telephone interview: A technique that is used to converse with the respondent as well as his or her employer (Akanda, 2018)

- Personal interview: A physical interview will be conducted in order to fill the questionnaire by the respondents (Akanda, 2018)

- Focus group discussion: The researchers themselves as moderators will have an open discussion session among a group of 10-15 respondents given they are all available at the same time.

- Mail questionnaires: Questionnaires will also be sent towards many respondents in case of their physical absence through mail with a covering letter – officially stamped with the logo of Bangladesh University of Professionals (Ibid, 2018).

6.5.3 Data Entry, Data Coding and Data Analysis Technique

SPSS software is being used to assess the data. The nature of analysis is multivariate where more than one variables are be involved (Ibid, 2018)

6.5.4 Hypothesis Testing

In case of multiple linear regressions the researchers performed the following null hypothesis:

$H_o = \beta 1 = \beta 2 = \beta 3 \ldots = \beta (k) = 0$ (Akanda, 2018)

In most of the cases the researchers presumed to reject the null hypothesis (Based on individual or joint significance level of $\beta$ co-efficient values, and to accept the alternative hypothesis given a true effect of the independent variables on the dependent factor 'reservation wage' could be justified with the following ranges of 'P' value = from 0.1 to 0.05 (Ibid, 2018). Thus, the researchers attempted to draw conclusive evidences on which decisive factors preliminarily influence the graduate reservation wage in Bangladesh (Ibid, 2018; Greene, 2013).

6.5.5 Limitation

Absence of longitudinal data to observe the change in the level of reservation wage of the same respondents over the years due to time constraints

6.5.6 Expected Relationship

A longer duration of unemployment was expected to lower the reservation wage whereas a higher managerial level of job applicants was hoping to be associated with an increasing reservation wage. Finally, a graduate with better socio-economic background is expected to maintain a higher reservation wage and a graduate who is being hired through formal channel of hiring (like published advertisement in a newspaper or a formal interview that is arranged through an on campus job fair) also expected to have the same. Although, based on the literature of Nakata and Chowdhury (2019), in Bangladeshi context, as graduate relies more on formal job networking his reservation price may go down.

6.5.7 Academic Significance

The authors are hoping to make a significant positive contribution to 'job search theory' from the context of Bangladeshi labor market. Most of the researchers earlier emphasized on 'graduate wage' and other determinants of employment outcomes in the labor market but none of them have tried to distinguish 'reservation wage' as a separate factor which might play a very crucial role in determining the outcomes of the skilled graduates in the labor market and must be considered as important by labor economics policy makers.

**7. Findings**

The researchers formulated the following empirical equation:

$\gamma = Rw = \alpha + \beta_1 \ DIFF + \beta_2 \ JL + \beta_3 \ PI + \beta_4 MED + \beta_5 \ DUR + \varepsilon$

Where, *Rw* = Reservation wage (Minimum wage capacity of a graduate to be employed)

DUR = Duration of unemployment in total (figured in number of days for both employed and unemployed graduates since a master's degree). For employed graduates it is the total period of unemployment before their current job.

PI = Parental income as socio-economic indicator that reports income from the most recent jobs for retired parents.

DIFF = Difference between 'Actual wage offer' and 'Reservation wage'

Given,

For unemployed graduates Actual wage offer (AW) is the highest wage offer they have received at the past job interviews (based on the 'wage scale') and for employed graduates it is the 'current monthly salary'

JL = managerial level of job, where the graduate is currently employed or unemployed graduates have applied very recently or they are interested in to apply in the near future which is also a dummy variable based on the following categories:

1 = Field level (e.g. marketing or insurance agent/promoter, medical representative etc.)

2 = Low managerial level (supervisors, section chief)

3 = Mid-management (General managers, branch managers, and department managers etc.)

4 = Top management (Chief executive, Chief financial officer, Chief operating officers, zonal heads)

5 = Board members (President, Vice-president, Chairman, Director of a board etc.)

6 = Stake owners (Those who own the stocks or share of partnership in an organization) (Kaiser, Craig, Overfield, Yarborough, 2011; Rai University, n.d.)

Finally, MED = Source or media of job application for the graduates which are based on the following categories:

1= Personal reference (Informal)

2 = Social contacts or influential references (Informal)

3 = Family, friends and other known sources (Informal)

4 = Newspaper, Magazine or other published official sources (Formal)

5 = Social Media (Formal)

6 = Internet job website (Formal)

7 = Random CV drop and visit to organization (Formal)

8 = On Campus job fairs (Formal)

9 = Other job fairs (Formal)

10 = Private job agency (Formal)

11 = Government job agency (Formal)

12 = Institutional reference (Academic or previous employment – formal) (Nakata and Chowdhury, 2019; Higer, Nordman and Sarr, 2018; Kobmann, 2016; Stanton and Thomas, 2015; ILO, 2011)

*7.1 Descriptive Statistics: Determinants of Reservation Wage*

## Descriptive Statistics

| | N | Range | Minimum | Maximum | Mean | | Std. Deviation | Variance | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stat | Stat | Stat | Stat | Stat | Std. Error | Stat | Stat | Stat | Std. Error | Stat | Std. Error |
| PI | 250 | 321000.00 | 60000.00 | 381000.00 | 194764.0000 | 6044.92030 | 95578.58215 | 9135265365.462 | -.066 | .154 | -1.498 | .307 |
| DUR | 250 | 2376 | 178 | 2554 | 1255.72 | 47.376 | 749.082 | 561124.371 | .198 | .154 | -1.522 | .307 |
| JL | 250 | 5 | 1 | 6 | 4.28 | .057 | .907 | .823 | -.137 | .154 | .665 | .307 |
| MED | 250 | 11 | 1 | 12 | 5.54 | .247 | 3.907 | 15.261 | .590 | .154 | -1.083 | .307 |
| DIFF | 250 | 650800.00 | -145800.00 | 505000.00 | -42916.3200 | 4701.96840 | 74344.64808 | 5527126698.050 | 2.294 | .154 | 13.526 | .307 |
| RW | 250 | 145800.00 | 10000 | 155800 | 74496.32 | 2703.970 | 42753.512 | 1827862791.222 | .319 | .154 | -1.285 | .307 |
| Valid N (list wise) | 250 | | | | | | | | | | | |

### 7.2 Analysis from Descriptive Findings

According to Kallner (2018) Kurtosis is a measure of the "tails" of the probability distribution. A standard normal distribution has kurtosis of 3 and is recognized as mesokurtic where as an increased kurtosis (>3) can be visualized as a thin "bell" with a high peak, further a decreased kurtosis corresponds to a broadening of the peak and "thickening" of the tails that is (<3) (Ibid, 2018). Additionally, Kurtosis that is >3 is leptokurtic and <3 as platykurtic. Additionally, Skewness measures the symmetry or if a distribution is asymmetric (Brown, 1997). A symmetric distribution looks similar to the one that has same amount of samples to the left and right of the center point (Ibid, 1997). It is to be noted that a skewness of a normal distribution is zero and any symmetric data should have skewness near zero (Ibid, 1997). According to Akanda (2018) a negative value of the skewness indicate data that are skewed on the left and a positive value of the skewness implies distribution of data which are skewed to the right. Left skewed data implies a distribution with a left tail that is long relative to the right tail and vice versa (Hair, Black, Babin and Anderson, 1998; Ibid, 1997; Ibid, 2018). Finally, if the data is multi-modal (more than one mode), then the sign of the skewness is affected (Ibid 2017).

Analyzing descriptive feature of the data, it was found that Kurtosis for variable 'parental income (PI)' was (+1.498) which indicated distribution of parental income had a flatter nature but it was neither a platykurtic (that comes with a negative kurtosis) nor a leptokurtic (comes with an excess kurtosis >3). It was not completely mesokurtic either. Therefore, the data was not a standard normal distribution. It had a higher tail than a normal distribution. A negative value of the skewness (-.066) of the data on 'parental income' indicated the distribution had a longer left tail relative to the right. Average monthly income for the household head was nearly 2 lakh and square root of the average deviations of all data points from this figure was almost 96 thousand. This reflected presence of samples which included mostly businessmen or employees occupied in private sectors, therefore, their monthly income had been well above the normal fixed salaries of government employees or small size entrepreneurs. The median was lower than the mode. Samples of parental income distributions on the left included two-third of the major occupation categories with higher frequencies of monthly incomes less than the average and mostly business occupations on the right (more than the average).

For Duration (DUR), the measured kurtosis was +1.522; once again neither a 'platykurtic' nor a 'leptokurtic' in nature but the distribution of the data came with relatively a flatter tail a mesokurtic. This time, it had a positive skewness (+.198) and implied a right tailed distribution. Even though based on Ibid (1997) these are within acceptable ranges for normal parameter tests but doesn't necessarily imply a standard normal distribution. It is to be noted that any values of asymmetry and kurtosis within a range of -2 to +2 imply a univariate normal distribution (George & Mallery, 2010) , thus, may be applied as subjects to a 'parametric hypothesis tests' of normal distribution. Average duration of unemployment among the graduates is 1255 days (those who have been graduating since 2016). Average squared root of the deviations of other duration spells from the average: 750 days, which is approximately more than 2 years for the most of graduates. Precisely, nearly all graduates who were included in the sample came from a better socio-economic background but experienced a longer-term of unemployment spells (more than 190 days) upon the completion of their master's degree (Nichols, Mitchell and Linders, 2013; ILO, 2011).

Further, kurtosis for 'managerial levels (JL)' of job applications (based on the most recent job interview profile) is slightly above (0) that is +0.66 and it implies an approximate normal distribution, again not a leptokurtic (that has a kurtosis below 0) but has a negative skewness (-.137). Precisely it is left tailed (flatter on the left) and highly peaked on the right proving that most of the unemployed graduates who were included in the sample - waiting to get a job above 'the entry-level' position. The chances are these candidates are facing a negative constraint while maximizing their objective function in the labor market, which implies a negative ($Aw$-$Rw$) < 0 'DIFF'. It further shades light on higher frequencies of mismatch events for those who possess higher skills and demand for wage premiums but experience a limited number of vacancy supplies at the top or mid managerial jobs. Data indicates 129 graduates among 250 respondents are relevant to mid-managerial levels of organizations offering jobs. As it was found from the sample: out of the total 129 candidates (who chose to apply for a higher managerial level either mid or top categories), more than more than half (50+) of them is still remaining unemployed. Noticeably, Most of these unemployed graduates are male (37) and only a few among them are females (13). This clearly supports the findings of Nakata and Chowdhury (2019) who revealed earlier that female graduates are doing relatively better than the males in the top managerial positions; therefore, they are also associated with higher returns on education from formal jobs.

Next, according to the descriptive findings media of job applications (MED) that had a kurtosis of 1.083 and a positive skewness (.590) A curve that looked relatively flatter on the right and peaked on the left (right tailed). But what does it imply? – the answer researchers came up with: most of the graduates who had been employed

chosen an informal media (personal contacts, family/friends/relatives or other social, influential contacts) of job application or firms relied mostly on informal hiring channels, and many among the graduates who had been unemployed relied on formal media of job applications. A wider distribution of the right tail supports the fact with highly dense unemployed samples on the left.

Finally, the variable 'DIFF' (difference between actual wage offer received) is leptokurtic in nature, high peaked in its central position, maintaining a kurtosis of >3 (13.526). It has two moods which reveal that 10 graduates lie within each of the modal groups with a same amount of positive DIFF (20,000; 30,000) while considering their actual salary position with respect to the respective reservation prices. Note that the average of the difference for variable 'DIFF' (Mean) is a negative figure: (-42,916 taka). Even though the distribution of the 'differences' has a positive skewness (2.294). Data which are located to the left of the average figure (contains 150 unemployed graduates facing a negative difference between actual and reservation wage) but data on the right included a typical bimodal nature. So one might define this type of data as a bimodal distribution where two different groups are being joined together. The average square root of the deviation for all other differences from the negative mean is 74,345.

Finally, Reservation wage was found to be maximum up to 1, 50,000+ for graduates who chose to apply for a top managerial job and a minimum of 10,000 for entry positions, maintaining an average of almost 75,000 and squared root of average deviation of all reservation price from the average measured a distance of 42,000+ taka .

The data had a negative kurtosis which is a platykurtic. It had a positive skewness (.319) which implies a right tailed distribution; therefore, the distribution had a flatter tail on the right and highly peaked on the left.

*7.3 Findings from Pearson Correlations Matrix*

| | | Duration of Unemployment since graduation for both employed and unemployed (DUR) | What is your current reservation wage (RW) | DIFF | media or informative sources did you use or prefer to use to apply for a job (MED) | monthly Income of HH (PI) | Level of employment (O) |
|---|---|---|---|---|---|---|---|
| Duration of Unemployment since graduation for both employed and unemployed (DUR) | Pearson Correlation | 1 | .912** | -.788** | .932** | .781** | .698** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |
| What is your current reservation wage (RW) | Pearson Correlation | .912** | 1 | -.826** | .893** | .777** | .693** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |
| DIFF | Pearson Correlation | -.788** | -.826** | 1 | -.747** | -.748** | -.531** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |
| media or informative sources did you use or prefer to use to apply for a job (MED) | Pearson Correlation | .932** | .893** | -.747** | 1 | .696** | .729** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |
| monthly Income of HH (PI) | Pearson Correlation | .781** | .777** | -.748** | .696** | 1 | .537** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |
| Managerial Level of employment (O) | Pearson Correlation | .698** | .693** | -.531** | .729** | .537** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | |
| | N | 250 | 250 | 250 | 250 | 250 | 250 |

**. Correlation is significant at the 0.01 level (2-tailed).

Analysis of the most interesting findings:

The Pearson correlation matrix indicates strong and statistically highly significant relationships (where the strength is strong) among the following variables:

I.      Relationship between 'Difference between actual and reservation wage (DIFF)' and 'different job media (MED)' (magnitude or direction is negative) implies as graduates decide to convert from informal to more formal media or formal hiring channels of selection their reservation price is also increasing (positive correlation of +.893) but potential or actual wage offers from employers are declining to increase the difference with their price and as a result, difference (DIFF) is increasing on negative direction (negative correlation between DIFF and MED which is -.747).

II.     DIFF has also a potential negative but statistically highly significant and negative strong correlation with current reservation price (-.826). The findings can be supported with the fact that more than half of the graduates, who were included in the sample are still unemployed either due to vacancy supply limitations or wage maximize constraints (150+ out of 250).

III.    Noticeably, Duration (DUR) has a strong positive correlation with current reservation price because the researchers have gathered data based on a snap shot view (only one time period). The researchers firmly believe that a repeated sampling gathered from the same respondents involving a time-series events and a longitudinal study might have indicated some other results (currently it is a positive correlation which implies as reservation wage is increasing, the duration of the unemployment for the respondents is also increasing and possibly includes a reverse casualty of the nature of the relationship the researchers predicted earlier).

IV.     However, the strong negative correlation (-.788) between 'DIFF – difference between wage offer and reservation price' but a positive relationship between 'DUR – duration of unemployment' and 'reservation wage' clearly states that as duration of unemployment becomes lengthier, actual wage offer tends to decline graduates in Bangladesh facing a longer duration of unemployment must revitalize their job search strategy in terms of reservation in order to accept the reality of current job market situation or else their employability might be negatively deemed (Nakata and Chowdhury, 2019; Brown and Taylor, 2008, 2009; 2013; Deschacht, 2021; Koenig, Manning and Petrongolo 2017)

V.      As managerial level of job positions for applied candidates gets lower, the relationship with 'DIFF' tend to exhibit a negative correlation (-.531), although moderate in strength but statistically significant; And monthly parental income (PI) has a negative moderate correlation with (DIFF) due to possible less and selective involvement with the labor market but because of with higher frequencies of events of mismatched wage offers although it has a strong and positive correlation with RW (reservation wage) and yet continues to maintain a positive correlation with duration of unemployment. Candidates from better socio-economic background also seem to be associated with applications at higher managerial level of job positions (+.537) and tend to prefer more formal media of job channels (+.696)

All of these results are statistically highly significant at an alpha value of p ($\leq$ 0.05)

*(a.1) Findings from the main model: Determinants of Reservation Wage*

| Model Summary | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .939[a] | .881 | .879 | 14880.328 | .881 | 362.300 | 5 | 244 | .000 | 1.358 |
| a. Predictors: (Constant), DIFF, Level of employment, monthly Income of HH, media or informative sources did you use or prefer to use to apply for a job, Duration of Unemployment since graduation for both employed and unemployed (TOTAL) | | | | | | | | | | |
| b. Dependent Variable: What is your current reservation wage | | | | | | | | | | |

From the above model summary it was found by the authors that the $R^2$ of the model is 81%. As a result, one may arrive to this conclusion that more than 80% the total variation within the range of reservation wage can be explained by the current model. Adjusted $R^2$ implies the model is currently adjusted by more than 80% (87.9%) for all the independent variables which are included. According to the findings, The Durbin-Watson statistic is 1.358 and therefore the data residuals are auto correlated to some extent. But it is a non-time series data (based on snap shot view from one time period) and no lagged value is involved (current or future period data may

change due to past period data), therefore, Durbin-Watson statistic is not a major concern to the researchers. However, the researchers believe the residuals became serially auto-correlated because of the software settings which recorded employed and unemployed graduates by an ascending order (from 1 to 0 based on their employment situation). Durbin Watson Statistic falls within the upper and lower bound range for the given sample size and parameters (at alpha 0.05 level) to reject the null hypothesis of Durban Watson statistic and residuals seem neither serially auto-correlated nor conclusive (near 2) when they are sorted randomly.

| Model Summary [(modified] for DW test unsorted cases) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .939[a] | .881 | .879 | 14880.328 | .881 | 362.300 | 5 | 244 | .000 | 1.827 |
| a. Predictors: (Constant), Duration of Unemployment since graduation for both employed and unemployed (TOTAL), Level of employment, monthly Income of HH, DIFF, media or informative sources did you use or prefer to use to apply for a job | | | | | | | | | | |
| b. Dependent Variable: What is your current reservation wage | | | | | | | | | | |

R values (94%) suggest a strong correlation between the observed and the predicted values of the dependent variable 'RW – reservation wage'. The standard error of the estimates indicate that the error terms are deviated at 14880 in relation to average which is also known as the square root of the Mean Square Residual (or Error).

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 401110338951.089 | 5 | 80222067790.218 | 362.300 | .000[b] |
| | Residual | 54027496063.310 | 244 | 221424164.194 | | |
| | Total | 455137835014.399 | 249 | | | |
| a. Dependent Variable: What is your current reservation wage | | | | | | |
| b. Predictors: (Constant), DIFF, Level of employment, monthly Income of HH, media or informative sources did you use or prefer to use to apply for a job, Duration of Unemployment since graduation for both employed and unemployed (DUR) | | | | | | |

From the ANOVA table it was observed by the researchers that

Regression MS (mean square regression) = $\sum (\hat{y} — \bar{y})^2$/Reg. DF = (401110338951.089/5) = 80222067790.218

Residual MS (mean square residuals) = $\sum (y — \hat{y})^2$/Res. DF = (54027496063.310/239) = 221424164.194

The residuals are large in values because they were not converted to log units and calculated in its original form (monthly monetary values) as negative differences were also included. The above implies that the total variability of the data (TSS – Total sum of square) around the mean is 455137835014. The observed data points are on an average 455137835014 units away from original population line. Almost 90% of these deviations (SSR 401110338951) are explained by the regression line and only a minor proportion of the deviations are unexplainable (RSS or Residual sum of square that is 54027496063) which may arise due to absence of some variables. It is to be noted that the F-value which is obtained when the Mean Square Regression (80222067790.218) divided by the Mean Square Residual (221424164.194), yielding F statistic value= 362.300 which is greater than a critical F value of 2.21 (given the denominator with the degrees of freedom = 200+ and numerator with the degrees of the freedom = 5). Therefore, one may reject the following null hypothesis - Null: All of the regression co-efficients are equal to = 0 or $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ in order to accept the following alternative hypothesis: All of the regression co-efficients are not equal to = 0 or $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$, thus, jointly, statistically significant. Precisely, all of the co-efficient have joint significant effects on the independent variables all together. The p-value associated with this F value is very small (0.000) that is less than <0.05. So these results are statistically highly significant. Further, these values can be used to answer the question "Do the independent variables reliably predict the dependent variable (RW)?" Based on the current results, the researcher can conclude that "Yes, the independent variables reliably predict the graduate RW – reservation wage" in other words, all these factors (Monthly income of the parents, level of job management for applicants, sources of job media of job applications: formal versus informal, duration of unemployment and difference between actual wage offer and reservation price may reliability predict the current reservation price of a graduate)

| Coefficients | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| | (Constant) | 3325.645 | 5583.626 | | .596 | .552 | | |
| | monthly Income of HH | .049 | .017 | .109 | 2.847 | .005 | .333 | 2.999 |
| | Duration of Unemployment since graduation for both employed and unemployed (TOTAL) | 18.125 | 4.110 | .318 | 4.410 | .000 | .094 | 10.660 |
| | Level of employment | 3656.844 | 1528.698 | .078 | 2.392 | .018 | .463 | 2.162 |
| | media or informative sources did you use or prefer to use to apply for a job | 3131.675 | 712.287 | .286 | 4.397 | .000 | .115 | 8.707 |
| | DIFF | -.138 | .022 | -.239 | -6.215 | .000 | .328 | 3.052 |
| a. Dependent Variable: What is your current reservation wage | | | | | | | | |

Based on the above results:

DIFF (difference between actual wage offer and reservation wage): For 1 unit increase in the scale of monetary difference between actual and reservation wage, there tends to be an average of .138 (negative) unit decreases in the range of reservation wage. A graduate who is better informed about the negativity of the market situation and potential wage offers, he seems to adjust his position. The findings can be supported by the literature that is provided by Ahn and Hamilton (2016). Ibid (2020) believes that the observable characteristics of unemployed graduates might differ significantly and some of them are well-driven by the market force such as 'motivational effect' arising from positive duration dependency as they face a longer duration of unemployment. Therefore, these people tend to lower their reservation wage. Ibid (2011) also believe that reservation wage is not static, a gap between reservation and starting wage might exist which seem to be a vital factor for determining market wage level and also graduates who are willing to minimize their opportunity cost during learning periods are encouraged to manipulate their reservation wage in the reported observations. Wage expectation is a vital factor to influence the level of reservation wage (Brown and Taylor, 2008). The same authors also describe that expectation about individual's future financial position tends to influence the setting of his/her reservation wage (Brown and Taylor, 2012). Even though these authors basically focused on 'optimistic' side of life such as proving that a higher level of reservation wage is associated with government making a positive intervention as an external force with tax credit policy that increases individual's optimism about future financial condition. But when the gap between actual and reservation wage grows in a negative direction one may demise the above principle as individuals with insecure financial position can no longer survive in a labor market with limited vacancy supplies for high skilled workers with a higher reservation.

Monthly parental/household head (HH) income as socio-economic indicator (PI): For 1 unit increase in the income of the household heads or parents there seems to be an average of .05 (+ positive) unit increase in the level of reservation wage. Findings from Nakata and Chowdhury (2019) who used parental educational qualification as a proxy indicator for socioeconomic background of graduates supports the view that the probability of being employed declines for students from families with better socioeconomic standing who can afford to have higher reservation price for salary, seeking to maximize job benefits and it also increases their duration of unemployment. Toufique (2014) cited via Ibid (2019) also suggested that unemployment is higher among youths from well-off backgrounds and the reason is their ability to resist or to sustain a lengthier unemployment period. Therefore, graduates from families with higher income group are rationally expected to have a higher reservation price. Findings from Heath and Swann (2002) also support the current results.

Selection of job managerial level (O): these results suggest that for 1 unit increase in the category of managerial level of job applications (as one tends to move to higher level of managerial position), there happens to be an average of 3656.844 unit (+positive) increase in the level of their reservation wage. Even though there are no clear literary evidences to support this finding but Munshi (2018) in his paper earlier suggested that wage is directly related to marginal level of productivity, hence, size of the firms where workers are employed and their level of jobs are directly related to their payroll. Ibid (2018) though categorized the level of jobs differently who proposed this dilemma in case of RMG industries but there is a further scope to explore this issue. Hilger, Sarr and Nordman (2018) found that occupational level is positively associated with wage returns in case of formal jobs which also supports the above view.

Media or informative sources of job applications (MED): Findings of the current research suggest that for 1 unit increase in the category of media or sources of job applications or the selection of hiring channels by the firms (as choices are gradually converted from informal towards the formal), the level of reservation wage gets higher by an average of 3131.675 (positive) units and one can't ignore the fact that this movement was found to be positively associated with longer duration of unemployment, therefore, suggesting a possible negative outcomes in the labor market. Hilger, Nordman and Sarr (2018) emphasized on the 'type of hiring channels – formal or informal' as a vital factor for wage return in formal occupations as these authors argued that wage return may vary by hiring channels and workers who are hired through formal channels may generate an additional wage return due to higher 'openness to experience'. This logic clearly supports the current view but only in case of employed personals. Even though results from Nakata and Chowdhury (2019) contradictorily suggest that graduates from colleges under national universities who mostly rely on personal network (informal) are largely employed and still find informal channels or source or media of job applications as the most popular source of succeeding in an interview as academic institutes don't seem to add any positive contribution in their job searching process. This may well support the fact why candidates with higher reservation price coming through the formal channels of hiring largely facing a longer duration of unemployment. Ibid (2019) also prescribes that more than half of the employed graduates on recent terms generated their employment through informal personal or family networks, consisting of family, relatives, or friends and formal job sources or hiring channels like published advertisements or job fairs still remain as a secondary source of job recruitment. Accordingly, the researchers believe using a formal media of job application or a formal selection of hiring channels by the firms, can make the evaluation of personal attributes or skills for the fresh graduates increasingly difficult (specially the non-cognitive or non-observable productivity aspects) due to poor signaling or adverse selection or moral hazard in information sharing (chowdhury and islam, 2021).

DUR (duration of unemployment): For 1 unit increase in the duration of unemployment there seems to be an average of 18.125 (positive) unit increase in the level of reservation wage. The results clearly contradict with views which were proposed by Brown and Taylor (2008; 2013); Ahn and Hamilton (2016); Brown and Taylor (2013); Dolton and O'Neil (1995); Heath and Swann (2002) and many others. The researchers though believe there are several reasons to this finding. First of all, the data doesn't observe the change in reservation wage from multiple periods of time, therefore, it is a non-time series data and lack vision on the final magnitude of the above relationship in terms of exit and re-entrance to the labor market. Second, the nature of the samples includes mostly high-skilled graduates from better socio-economic back ground who are associated with a higher level of education and mostly young (who are periodically only at the half stage of their professional career). As a result, most of them can afford to sustain a longer duration of unemployment, not being negatively affected by their present situation. Van Den Berg and Van Ours (1996) cited via Ibid (2016) as a part of their explanation of the 'genuine duration dependence' theory, confirm that individuals loose value of their human capital as duration of unemployment tends to be longer. Further, employers may be willingly discriminating against such candidates (Eriksson and Roth, 2014; Kraft, Lange and Notowidigdo, 2013 cited via Ahn and Hamilton, 2016). Accordingly, a snap shot view is never enough to get a clear information on this. Finally, the researchers have also a firm reason to believe that there is an impact of reverse casualty which states reservation wage may also impact the duration of unemployment – a case that represents a possible positive association and so, unless more research is done on the above and within an extended settings of a time series data gathered on the same respondents, nothing is conclusive. However, in order to check on the extent to which these graduates possess current market information, 'prior working experience' was added as an additional variable to see if it minimizes the effect of positive changes in 'reservation price' that is being associated with a longer duration of unemployment. Finally, evidence on reservation wage for individuals by Koenig, Manning and Petrongolo (2017) also suggests that change in reservation is not static rather it is dynamic and involves multi-periodical changes.

Nakata and Chowdhury (2019), however, from Bangladeshi perspective found that graduates in Bangladesh are pretty much relaxed to adjust their reservation price as a part of the job searching strategy despite expectation mismatch. Therefore, based on the current results one may reach to this conclusion that the positive co-efficient of the relationship between duration and reservation suggests a need for adjustment in the job searching strategy for the unemployed graduates in the near term future..

*(a.2) Decisions on Hypothesis*

Further, the t-statistic measures how far the coefficient is located from '0' in terms their standard errors. Based on research theories any t-value that is greater than +2 or less than – 2 is formally acceptable. The higher the t-value, the greater the confidence one might have in the individual coefficient of the parameters as a predictor, therefore, the null hypothesis can be rejected and alternative hypothesis can be accepted. Referring back to

earlier hypothesis which were formulated by the researchers:

The null/alternative hypothesis which were relevant to 'Model I' are as follows

Null: Reservation wage is not affected by the following factors:

 I.    Duration of unemployment (DUR) (Ho: $\beta_1 = 0$)

 II.   parental income (Ho: $\beta_2 = 0$)

 III.   Difference between Actual wage offer and reservation (Ho: $\beta_4 = 0$)

 IV.   Selection of occupation in terms of job level (Ho: $\beta_5 = 0$)

 V.   Media/informative source of job applications (Ho: $\beta_6 = 0$)

As alternatives are:

Reservation wage is affected by the following factors:

 I.    Duration of unemployment (DUR) (Ho: $\beta_1 \neq 0$ )

 II.   parental income (Ho: $\beta_2 \neq 0$ )

 III.   Difference between Actual wage offer and reservation (Ho: $\beta_4 \neq 0$ )

 IV.   Selection of occupation in terms of job level (Ho: $\beta_5 \neq 0$ )

 V.   Media/informative source of job applications (Ho: $\beta_6 \neq 0$)

Decision rules:

 I.    Based on the 'Table 7.4' on regression 'coefficient analysis' value of 't' statistic for 'duration of unemployment (DUR)' from the original model is 4.410 which is greater than the critical t value at 0.05 level of significance, which is (+/-)1.9 and based on degrees of freedom (n-2) =248 . Based on the above result, one may reject the null hypothesis (I) at 0.05 level, that is 'reservation wage is not determined by duration of unemployment' and one may certainly accept the alternative, that is 'reservation wage is affected by longer/increasing duration of unemployment' (Ha: $\beta_1 \neq 0$) while conducting a 2-tail test.

 II.   Based on the 'Table 7.4' on regression 'coefficient analysis' value of 't' statistic for ' (PI)' is 2.847 which is greater than (+/-)1.943 (critical T value at 0.05 level of significance and with n-2 degrees of freedom) Based on the above result, one may reject the null hypothesis (II) at 0.05 level, that is 'reservation wage is not determined by parental income (PI)' and accept the alternative, that is 'reservation wage is affected by higher level of parental income (PI)' (Ha: $\beta_1 \neq 0$)

 III.   Based on the 'Table 7.4' on regression 'coefficient analysis' value of 't' statistic for 'Difference between actual wage offer and reservation wage (DIFF)' is 6.215 which is certainly greater than (+/-)1.943 (obtained critical T value at alpha = 0.05 level of significance considering and when degrees of freedom = n-2) Based on the above result, one may reject the null hypothesis (III) at 0.05 level, that is 'reservation wage is not primarily determined by differences between actual wage offer and reservation wage (DIFF)' in order to accept the alternative, that is 'reservation wage is determined by the difference between actual wage and reservation wage (DIFF)' (Ha: $\beta_3 \neq 0$)

 IV.   Based on the 'Table 7.4' on regression 'coefficient analysis' value of 't' statistic for 'Selection of occupation in terms of job level (JL)' is 2.39 which is again greater than (+/-) 1.9 (obtained critical T value at 0.05 level of significance and when degrees of freedom = n-2) Therefore, based on the above result, one may reject the null hypothesis (IV) at 0.05 level, that is 'reservation wage is not determined by level of occupation (JL)' to accept the alternative, that is 'reservation wage is determined by a higher level of occupation ' (Ha: $\beta_4 \neq 0$)

 V.   Based on the 'Table 7.4' on regression 'coefficient analysis' value of 't' statistic for 'Media/informative sources of job application (MED)' is 4.39 which is certainly greater than (+/-) 1.9 (obtained critical T value at alpha = 0.05 level of significance and when degrees of freedom =n-2). Based on the above result, one may reject the null hypothesis (V) at 0.05 level, that is 'reservation wage is not determined by choices of job application media/informative sources (MED)' in order to accept the alternative, that is 'reservation wage is affected by choices of job application media or informative sources (MED)', that is: (Ha: $\beta_5 \neq 0$) (Akanda, 2018; Gujarati, Porter and Gunasekar, 2016).

(b) what does it happen to the difference between potential wage offer and reservation price when duration of unemployment increases?

**Variables Entered**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | Duration of Unemployment since graduation for both employed and unemployed (DUR)[b] | . | Enter |

a. Dependent Variable: DIFF

b. All requested variables entered.

In this model, dependent variable: Difference between actual wage offer received and reservation price , that is : $Rw - Aw = DIFF$

$$\gamma = DIFF = \alpha + \beta_1\ DUR + \varepsilon$$

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .788[a] | .621 | .619 | 45862.08428 | .621 | 406.322 | 1 | 248 | .000 | 1.601 |

a. Predictors: (Constant), Duration of Unemployment since graduation for both employed and unemployed (TOTAL)

b. Dependent Variable: DIFF

The new $R^2$ of the model is 62.1 %. As a result, one may arrive to this conclusion that more than 60% the total variation in difference between actual wage offer and reservation price can be explained by the duration of unemployment. The Durbin Watson test statistic is within an acceptable range.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 854628515630.450 | 1 | 854628515630.450 | 406.322 | .000[b] |
| | Residual | 521626032183.946 | 248 | 2103330774.935 | | |
| | Total | 1376254547814.396 | 249 | | | |

a. Dependent Variable: DIFF

b. Predictors: (Constant), Duration of Unemployment since graduation for both employed and unemployed (TOTAL)

Once again the F value is significant at alpha = 0.05 level (P value <0.05). So the model is reliably predicting the independent factor where null hypothesis on 'Coefficient equal to zero' can be clearly rejected.

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 55292.900 | 5670.168 | | 9.752 | .000 |
| | Duration of Unemployment since graduation for both employed and unemployed (DUR) | -78.209 | 3.880 | -.788 | -20.157 | .000 |

a. Dependent Variable: DIFF

Now it can be clearly seen that for 1 unit positive change in 'DUR – duration of unemployment' there is an average of 78 units (Negative) change in the level of 'difference between actual and reservation wage' suggesting a negative movement of the wage offers for long-term unemployed graduates. And this truly explains evidences which were found earlier from different authors like Brown and Taylor (2008; 2013); Ahn and Hamilton (2016); Brown and Taylor (2013); Dolton and O'Neil (1995); Heath and Swann (2002) and many other authors.

T statistic suggests once more the obtained t value is far greater than the critical t value at alpha = 0.05 level for 2 tailed test. The result is also significant at alpha value = 0.05 due to smaller p value. Hence one may also reject the following null hypothesis:

Null: Duration of unemployment (DUR) doesn't affect the difference between actual and reservation wage' in

order to accept the following, that is:

Alternative hypothesis: Duration of unemployment (DUR) negatively affects the difference between actual wage offer and reservation price (Gujarati, Porter, Gunasaker, 2016; Greene, 2013)

Precisely, as duration of unemployment tends to be longer, difference between actual and reservation wage' grows in negative direction because holding the fact that a large reservation value remains unchanged , actual wage offer constantly falls despite no change in the opinions of the graduates.

The constant alpha value refers to a fixed proportion of changes in the level of reservation wage by 3325.645 unit due to some other external factors which are absent in the current model even if there no changes in the independent factors which are mentioned by the researchers. All the estimated slope values are statistically highly significant.

*(c) What if graduates are well informed?*

| Variables Entered/[a] | | | |
|---|---|---|---|
| Model | Variables Entered | Variables Removed | Method |
| | Duration of Unemployment since graduation for both employed and unemployed (DUR), Level of employment (JL), Monthly Income of HH (PI), DIFF (Difference between actual and reservation wage) Media or informative sources did you use or prefer to use to apply for a job (MED) Total number of years of working experience in labor market for both employed and unemployed (EXP) | . | Enter |
| a. Dependent Variable: What is your current reservation wage | | | |
| b. All requested variables entered. | | | |

In this model, the researchers just added a new variable called 'Working experience (EXP)' for both employed and unemployed graduates in order to examine if the positive relationship between duration of unemployment and reservation wage is affected by 'previous work experience in the job market'

| Model Summary | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .942[a] | .886 | .884 | 14583.754 | .886 | 316.159 | 6 | 243 | .000 | 1.803 |
| a. Predictors: (Constant), Duration of Unemployment since graduation for both employed and unemployed (TOTAL), Level of employment, monthly Income of HH, DIFF, media or informative sources did you use or prefer to use to apply for a job, Total number of years of working experience in labor market for both employed and unemployed | | | | | | | | | | |
| b. Dependent Variable: What is your current reservation wage | | | | | | | | | | |

From the above model summary it is found by the authors that the $R^2$ of the model is now 88.6%. This is as good as it gets. As a result, one may arrive to this conclusion that more than 90% the total variation within the range of reservation wage can be explained now by this new regression model. Adjusted $R^2$ implies the model is currently adjusted by more than 89% (88.4%) for all the independent variables which are included. According to the findings, The Durbin-Watson statistic is within acceptable range based on N and k proving residuals are neither auto-correlated nor conclusive. R values (94%) suggest a strong correlation between the observed and the predicted values of the dependent variable '*RW* – reservation wage'. The standard error of the estimates indicate that the error terms are deviated at 14583.754 in relation to average which is also known as the square root of the Mean Square Residual (or Error).

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Model | Sum of Squares | df | Mean Square | F | Sig. |
| Regression | 403455169394.212 | 6 | 67242528232.369 | 316.159 | .000[b] |
| Residual | 51682665620.187 | 243 | 212685866.750 | | |
| Total | 455137835014.399 | 249 | | | |

a. Dependent Variable: What is your current reservation wage

b. Predictors: (Constant), Duration of Unemployment since graduation for both employed and unemployed (TOTAL), Level of employment, monthly Income of HH, DIFF, media or informative sources did you use or prefer to use to apply for a job, Total number of years of working experience in labor market for both employed and unemployed

From the ANOVA table it was observed by the researchers that

Regression MS (mean square regression) = $\sum (\hat{y} - \bar{y})$ ²/Reg. DF = (403455169394.212/6) = 67242528232.369

Residual MS (mean square residuals) = $\sum (y - \hat{y})$ ²/Res. DF = (51682665620.187/243) = 212685866.750

The above implies that the total variability of the data (TSS – Total sum of square) around the mean is 455137835014.399. The observed data points are on an average 455137835014.399 units away from original population line. And more than 90% of these deviations (SSR – 403455169394.212 ) are explained by the regression line and only a minor proportion deviations are unexplainable (RSS or Residual sum of square that is 51682665620.187 ) which implies there still might be few variables not considered by the current model. It is to be noted that the F-value which is obtained when the Mean Square Regression (67242528232.369) divided by the Mean Square Residual (212685866.750), yielding F= 316.159 which is greater than a critical F value of 2.10 (given the denominator with the degrees of freedom = 200+ and numerator with the degrees of the freedom = 6). Therefore, one may reject the following null hypothesis - Null: All of the regression co-efficient are equal to = 0 or $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ in order to accept the following alternative hypothesis: All of the regression co-efficient are not equal to = 0 or $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$. Precisely, all of the co-efficient have some effects on the independent variables all together. The p-value associated with this F value is very small (0.000) that is less than <0.05. So these results are statistically highly significant. Further, these values can be used to answer the question "Do the independent variables reliably predict the dependent variable?" Based on the current results, the researcher can conclude that "Yes, the independent variables reliably predict the dependent variables" in other words, all these factors (Monthly income of the parents, level of job management for applicants, sources of job media of job applications: formal versus informal, duration of unemployment and difference between actual wage offer and reservation price, also previous working experience may reliability predict the current reservation position of a graduate.

| Coefficients | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | B | Std. Error | Beta | | | Tolerance | VIF |
| (Constant) | 9898.926 | 5819.421 | | 1.701 | .090 | | |
| DIFF | -.131 | .022 | -.228 | -6.009 | .000 | .325 | 3.078 |
| PI | .032 | .017 | .072 | 1.855 | .065 | .307 | 3.256 |
| DUR | 2.669 | 6.156 | .047 | .434 | .665 | .040 | 24.894 |
| JL | 3782.083 | 1498.705 | .080 | 2.524 | .012 | .462 | 2.163 |
| MED | 2969.555 | 699.797 | .271 | 4.243 | .000 | .114 | 8.750 |
| EXP | 21.661 | 6.524 | .329 | 3.320 | .001 | .048 | 21.044 |

a. Dependent Variable: What is your current reservation wage

| Pearson Correlations Matrix: Model Including prior working experience | | PI | DUR | JL | MED | EXP | DIFF | RW |
|---|---|---|---|---|---|---|---|---|
| PI | Pearson Correlation | 1 | .781** | .537** | .696** | .806** | -.748** | .777** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| DUR | Pearson Correlation | .781** | 1 | .698** | .932** | .973** | -.788** | .912** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| JL | Pearson Correlation | .537** | .698** | 1 | .729** | .677** | -.531** | .693** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| MED | Pearson Correlation | .696** | .932** | .729** | 1 | .909** | -.747** | .893** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| EXP | Pearson Correlation | .806** | .973** | .677** | .909** | 1 | -.795** | .915** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | | .000 | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| DIFF | Pearson Correlation | -.748** | -.788** | -.531** | -.747** | -.795** | 1 | -.826** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | | .000 |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| RW | Pearson Correlation | .777** | .912** | .693** | .893** | .915** | -.826** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 250 | 250 | 250 | 250 | 250 | 250 | 250 |

**. Correlation is significant at the 0.01 level (2-tailed).

Explanation of the coefficients:

PI: For 1 unit change in Parental income there is still a positive average .032 unit change in the level of reservation price.

JL (Managerial level): For 1 unit change in the level of managerial structure of the job where graduates are applying, there is an average , positive 3782.083 units of change in the reservation price.

MED: For 1 unit change in the media of hiring channels/job application (as graduates are converting their choices from informal to formal) there is an average, positive 2969.55 units of change in the level of reservation price.

DIFF: The change in reservation price due to the difference between actual and reservation price is negative but smaller than before which is on an average .-131 units.

EXP: For one additional day of working experience in the labor market, there is an average, positive 22 units changes in the level of reservation price

But one may well notice now:

DUR: the positive changes in the level of reservation price due to 1 additional day of unemployment, how it falls and tend to be a very smaller number which is 2.6 units when 'EXP' is added as an additional variable.

Based on the T statistics, therefore, given the authors add the following hypothesis:

Null: Prior working experience (EXP) does not affect the level of reservation price (RW) for the graduates

Alternative: Prior working experience (EXP) does not affect the level of reservation price (RW) for the graduates

Considering the degrees of freedom (n-2 = 248 which is 200+; and alpha level of significance = 0.05) the obtained T value that is 3.320 is certainly greater than the critical T value (+/- 1.9), so one may reach to the following conclusion:

Null: Prior work experience (EXP) doesn't affect the level of reservation wage (RW) (Rejected)

Alternative: Prior working experience (EXP) positively affects the level of reservation price (RW) for the graduates (Accepted).

Axelard, Luski and Malul (2017) finds that older people with longer duration of unemployment have a lower reservation wage, possibly because these people are better in estimating their true worth in a given labor market. Heath and Swann (1999) find that employees who have previously worked at top managerial positions, for them experience have a statistically significant relationship with reservation wage, especially if they do not prefer to attend jobs outside their previous experience .Ibid (1999) also finds that previous hourly pay significantly affect the ongoing current reservation wage when candidates are highly skilled but also have prior information working on the job market. Hurtog, ophem and berkhout, (2011) included further 'previous working experience' as an important indicator to estimate the reservation wage, who concludes that reservation wage can be estimated specially for slow track graduates through their prior work experience and it can be also categorized in terms of: experience before or after the graduation, relevant or non-relevant work experience, pre-labor experience based on internship and managerial experience. All these findings support the current research results.

Based on the newly added variable, the empirical equation of the extended model should be:

$\gamma = Rw = \alpha + \beta_1\ PI + \beta_2\ JL + \beta_3\ MED + \beta_4 EXP + \beta_5\ DIFF + \beta_6\ DUR + \varepsilon$

Null: $\beta_1 = 0$ (rejected)

     Alternative: $\beta_1 \neq 0$ (accepted)

Null: $\beta_2 = 0$ (rejected)

     Alternative: $\beta_2 \neq 0$ (accepted)

Null: $\beta_3 = 0$ (rejected)

     Alternative: $\beta_3 \neq 0$ (accepted)

Null: $\beta_4 = 0$ (rejected)

     Alternative: $\beta_4 \neq 0$ (accepted)

Null: $\beta_5 = 0$ (rejected)

     Alternative: $\beta_5 \neq 0$ (accepted)


All these results are statistically highly significant at alpha =0.05 level as all their p values are smaller (<0.05)

<u>Duration plays a non-significant role in the current model</u>:

Based on obtained t value (considering n-2 = 248 *df* and alpha level of significance =0.05) which is .434, certainly smaller than the critical t value (+- 1.9). Accordingly one may accept the following null hypothesis in order to reject the alternative:

Null: Duration of unemployment doesn't affect the level of reservation price of experienced graduates (Accepted)

Alternative: Duration of unemployment positively/negatively affect the level of reservation price of experienced graduates (rejected)

(d) A revised model: Exclusion of duration and Inclusion of experience

| Model Summary | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .941[a] | .886 | .884 | 14559.468 | .886 | 380.620 | 5 | 244 | .000 | 1.806 |
| a. Predictors: (Constant), Total number of years of working experience in labor market for both employed and unemployed, Level of employment, DIFF, monthly Income of HH, media or informative sources did you use or prefer to use to apply for a job | | | | | | | | | | |
| b. Dependent Variable: What is your current reservation wage c. From the above model summary it is found by the authors that the $R^2$ of the model is now unchanged (after dropping DUR). Still 90% the total variation within the range of reservation wage can be explained now by this new regression model. Adjusted $R^2$ and Durbin-Watson statistic once again rejects the null that the residuals are serially correlated. R values (94%) also remain unchanged suggesting there is still a strong correlation between the observed and the predicted values of the dependent variable 'RW – reservation wage' despite dropping DUR – duration from the model | | | | | | | | | | |

So the new model (excluding duration) should be:

$\gamma = Rw = \alpha + \beta_1\ PI + \beta_2\ JL + \beta_3\ MED + \beta_4 EXP + \beta_5\ DIFF +$

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 403415174714.764 | 5 | 80683034942.953 | 380.620 | .000[b] |
| | Residual | 51722660299.635 | 244 | 211978115.982 | | |
| | Total | 455137835014.399 | 249 | | | |
| a. Dependent Variable: What is your current reservation wage | | | | | | |
| b. Predictors: (Constant), Total number of years of working experience in labor market for both employed and unemployed, Level of employment, DIFF, monthly Income of HH, media or informative sources did you use or prefer to use to apply for a job | | | | | | |
| c. The F value is statistically highly significant. | | | | | | |
| d. Therefore, the model is reliably predicting the independent factor where null hypothesis on 'Coefficient equal to zero' can be clearly rejected | | | | | | |
| e. The constant is also statistically significant at alpha = 0.1 level which was previously insignificant in the main model. | | | | | | |
| f. The new model has a 'Tolerance' (>minimum .10) and  'VIF' value within acceptable range (<5) that removes extreme level of multicollinearity from the model. Only MED and EXP have low multicollinearity (from >5 but <10) which is ignorable. | | | | | | |

| Coefficients | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | B | Std. Error | Beta | | | Tolerance | VIF |
| (Constant) | 10612.298 | 5572.767 | | 1.904 | .058 | | |
| DIFF | -.132 | .022 | -.229 | -6.050 | .000 | .326 | 3.069 |
| PI | .033 | .017 | .073 | 1.874 | .062 | .307 | 3.252 |
| JL | 3822.146 | 1493.364 | .081 | 2.559 | .011 | .464 | 2.155 |
| MED | 3104.769 | 625.447 | .284 | 4.964 | .000 | .143 | 7.013 |
| EXP | 23.800 | 4.262 | .362 | 5.584 | .000 | .111 | 9.012 |
| a. Dependent Variable: What is your current reservation wage | | | | | | | |

*7.4 Answer to the Research Question*

Following factors preliminarily determine the reservation wage for high-skilled graduates in Bangladesh:

- Socio-economic indicator (Parental income)
- Difference between actual wage offer and current reservation
- Media of job applications
- Prior working experience
- Selection of occupation in terms of managerial level

Revised conceptual model:
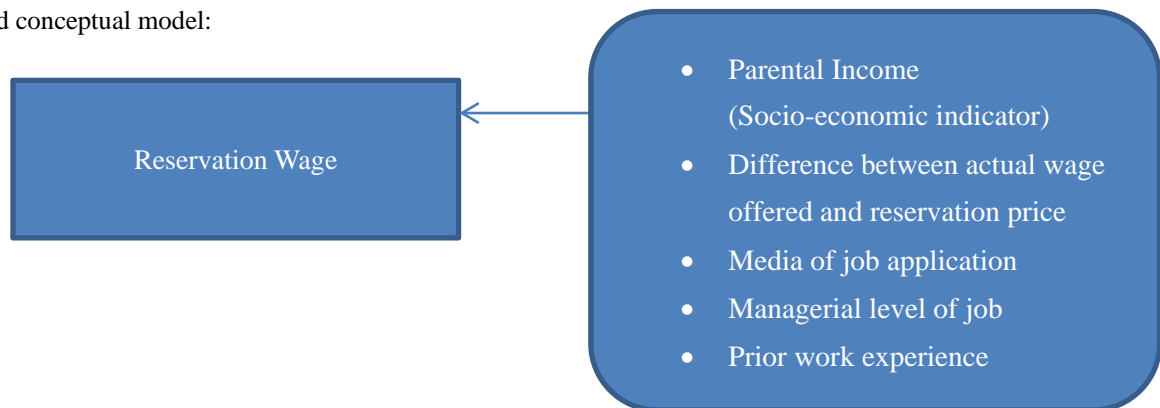


It is to be further noted that reservation wage doesn't monotonically decline with time; rather it either increases or decreases as one learns about complete market information or wage distribution through sampling and so, they can assess their true labor market value in individual terms (Sant, 1977). Tjaden and Wellschmeid, (2012) conducted research on 'Frictional wage dispersion' : a view that indicates loss in the nominal wage for people moving in and out of the job is not always a true phenomenon where workers with same characteristics may earn different wages. However, findings also indicate following a job transition there might be a substantial variation in terms of nominal or real wage gain or losses, which depends on the type of job transitions such as: changes of preferred firms/employers, changes of selection of occupation or job dissatisfaction arising from unpaid vacation due to absence of illness or any other reasons (Ibid, 2012). Precisely, graduates looking for wage improvement

and seeking job transition are not always guaranteed a wage gain. Based on Ibid (2012) job to job transition is a large source of wage mobility and may also often involve a reduction in pay. Finally, Ortego-Marti (2014) agrees that as wage dispersion increases, at some point workers tend to accept lower paying jobs in order to avoid longer duration of unemployment. Precisely, a reverse casualty is involved. Also, the firms in a given labor market have more bargaining power than workers, wages which are actually paid to high skilled graduates do not have to be necessarily equaled to marginal value of productivity in labor market with limited vacancies for such workers (Konning, Ridder and Van den berg, 1995). Ibid (1995) further points out that for frictionally unemployed candidates (people who are distinguished from structurally unemployed people) - when there is an increase in the alternative benefits (e.g. unemployment benefits, scope for self-employment etc.) it can create a situation where increase in their reported reservation wage remains consistent. Examining all these evidences, the authors believe there are several possibilities to conclude on the relationship between duration of unemployment and reservation, therefore, it is excluded in the final revised model. However, most of the high skilled graduates demanding a higher wage premium are certainly in a position to make a risky trade-off between accepting a job now at the current market price or accepting a job later possibly either at a lower pay unless they accumulate new skills during the gap of absence in the labor market.

## 8. Recommendation

Reservation wage come to play a vital role in the labor market. Meanwhile, additional information on the market through past working experience, exerting influence in the change of reservation might still make little or no difference in case of the young workers. Axelard, Luski and Malul (2017) suggest in their theoretical model on reservation wage for the older workers, given there are several periods to analyze the reservation point of a professional career in a given labor market, in the first or second half of the career it is reasonable for workers to increase their reservation above the average minimum wage , however, as one gets older and experience longer periods of unemployment tend to exhibit a greater willingness to reduce their reservation price. It is highly noticeable that the average age limit of the current sample members in the present paper doesn't exceed thirty. And so, one may certainly reach to this conclusion that due to the vast inclusion of experienced but relatively younger high skilled graduates, the model continues to suggest a positive association between duration of unemployment and reservation wage despite adding 'previous working experience' as indicator for well-informed graduates. Evidences from Ahmed and McGillivray (2019) strongly support the view of the authors that a demand for positive wage premium is strongly associated with longer duration of unemployment. Ibid (2019) also indicates that a tendency to obtain a higher wage premium is positively related with decisions of male graduates to obtain further education instead of joining the labor market although female graduates were found neutral in this perspective. Precisely, mismatch of reservation and actual wage offer may occur for both fresh and old graduates but the age of these graduates remain a crucial factor and must be examined further. Haefke, Sonntag and Rens (2008) found that wages of the newly hired or fresh graduates can be relatively more volatile and responds to one to one changes in labor productivity even though it remains a little more flexible at the beginning of their career. But as one grow more experienced in labor market, their tendency to compromise the reported reservation wage also increases. But what about firms compensating for additional time spent in the classroom or in a training ground? This remains a vital question. And so, one might see a persistence rise in the unemployment among the young graduates in an economy where number of innovative firms exceeding the threshold level of profitability to compensate high skills and to supply increased number of vacancies remain an absent phenomenon.

External policy makers such as Government may provide wage subsidies to the private employers which will maximize the supply of skilled vacancies at a lower labor cost (Snower, 1994) and will create more jobs in the economy for the skilled graduates. Finally, the authors recommend further research on the above issue by adding more variables: age, gender, variation in the industry or locations of the job sectors, differences in the personal attributes of the graduates (both observable such as academic results/disciplines/type of institutions, levels of cognitive or non-observable characteristics such non-cognitive skills and personal traits). The researchers are also willing to instigate future exploration by working on a longitudinal data to observe the periodical changes in the reservation prices of the same respondents in order to examine the effects of reversed casualty in the relationship between reservation wage and long-term unemployment. In the end, the researchers believe that it is important for the graduates to remember: one must work on compete and perfect market information to calculate their true worth and firms must be also willing to improve their process in evaluate the internal signaling on graduate productivity to figure out the most efficient wage for skilled graduates.

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