Employment and Unemployment amongst Educated Youth in Bangladesh: An Exploratory Analysis

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This is an exploratory exercise that attempts to identify the potential for carrying out online socio-economic surveys in Bangladesh, taking the question of "educated unemployment" as a test case. The topic is of great interest not just in Bangladesh but also throughout South Asia and beyond, where the issue is of particular concern in the context of rapid growth and rising aspirations amongst young people. Most studies depend either on own data generation or periodic national level surveys like the Labour Force Surveys (LFS). The former consists of small datasets, while the latter have a limited number of relevant variables available for analysis. Thus, easier access to larger datasets with better coverage of variables would be a highly welcome additional resource for researchers and policymakers.

It was, in fact, possible to rapidly generate a large volume of data using an online platform (Facebook) for this exercise. The data validation approach used here is to compare findings with those reported in the wider literature. In general, the results obtained from the online survey appear both reasonable and defensible. The estimates of educated unemployment are consistent with other available estimates. The relationship of unemployment to education, gender and location is similar to those reported in the literature. The effect of "control" variables like family size, age and family income was as expected. In particular, family income (reflecting family influence) emerged as a powerful predictor. The study was also able to throw light on two other aspects of the labour market, including duration of unemployment and salary levels.

Keywords: Youth Unemployment, Returns to Education, Skill Development, Online Survey

JEL Classification: C31, C83, J21, J24, I26

I. INTRODUCTION

The problem of educated unemployment among the youth is particularly vexing for developing countries like Bangladesh, which has led to a large literature

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on its status, causes, correlates and consequences, as well as the nature of demand and supply in the youth labour market revolving around issues of employability and skills, quality and type of education, and structural constraints (Islam 1980, Ilchman 1969, Morse 1970, Prasad 1979, Mook 1982, Mathew 1995, Hughes 1997, Psacharapoulos and Patrinos 2018). This concern has been exacerbated in Bangladesh by reports of a high incidence of educated unemployment despite excellent economic performance and rapid structural transformation.[1] Although there is no *a priori* reason to believe that growth will automatically lead to high employment, there is an expectation that it should.[2] Political sensitivity to the issue was also heightened by the fact that the size of the youth labour force has been rising sharply as the country entered into its demographic dividend phase.[3] There is thus a growing concern in the country that if large numbers of educated, young people are bypassed by the development process and fail to obtain employment, this might lead to widespread social unrest and encourage extremism.[4]

There is an additional concern that large public investments in education should yield substantial returns (Pacharapoulous 1984, 2018) although the literature generally tends to point to low and diminishing returns to education (Blaug and Woodhall 1969).

The authors are of the view that policy analysis related to the question of educated unemployment in Bangladesh suffers from serious data constraints, which can undermine government policy. Studies on youth or educated unemployment in Bangladesh are few and far between, with most having to rely on data patched together from various sources, or alternatively, relying on small

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[1]ILO estimates youth unemployment at around 12 per cent in 2019 and Youth NEET (those not in education, employment or training) at 27.4 per cent in 2017 (https://www.ilo.org/gateway/faces/home/ctryHome?locale=EN&countryCode=BGD&_adf.ctrl-state=yh57ma5u6_4). Estimate of Youth NEET from Khatun and Saadat (2020) is just under 30 per cent, while Toufique (2014) gives a figure of 41 per cent. The variations appear to be due to definitions of youth used and whether the percentages refer to the labour market or the youth population as base values.

[2]See Ilchman and Dhar (1970) and Morse (1970) who note that GDP growth or development does not necessarily go hand in hand with employment generation. In fact, the problem of unemployment, especially amongst the educated, has generally presented great difficulty.

[3] The concern with student discontent and educated unemployment is many decades old, e.g., see Ilchman and Dhar (1970).

[4] The ghost of the attackers of Holey Artisan Café carried out on 1 July 2016 by radicalised young people who took hostages, killing a large number of people in Dhaka, remains very much alive.

micro-surveys.[5] This paper explores whether online data could serve to fill this gap by enabling rapid access to credible data and analysis. If successful, it could significantly improve the ability of policymakers to arrive at informed decisions quickly and inexpensively.[6]

Thus, there are two aspects involved in this study: (a) data generation and analysis, and (b) validation of findings. The approach to validation adopted is to compare our survey findings with those reported in the literature, especially that pertaining to Bangladesh and the broader region.

Thus, as part of the validation process, the study explored the state of educated unemployment and its correlates, among Bangladeshi youth, aged 18-35.[7] An attempt was made to examine various dimensions of the educated unemployment problem, including its status, differentials by education level, gender, location and its association with school, family and individual characteristics. Apart from unemployment, we also explore unemployment duration and earnings of the educated youth.

The main hypothesis of the paper is that the findings from the online survey are credible and closely mirror those reported in the relevant literature. If this hypothesis is borne out, the online findings may be considered reliable and online data collection can be incorporated into the national data generation policy process as an important additional resource to inform policy.

II. LITERATURE REVIEW

The literature on educated unemployment can be distinguished from the more general youth unemployment literature by recognising that there are crucial differences between the two in analytical and policy terms. In the post-war decades of the 1950s and 1960s, there was a growing apprehension in industrialised countries about unemployed school dropouts and the potential source of social turbulence this might create (Morse 1970, Prybyla 1961, Kraus 1978). With time,

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[5]In Bangladesh, researchers rely mainly on the Labour Force Surveys (LFS). For exploring specific issues (e.g., graduate unemployment and its determinants), purposive surveys are required (e.g., see Islam 1980).

[6] The alternative would be to await the release of data from national surveys like LFS, that can take years, or alternatively carry out time-consuming and costly traditional field surveys.

[7] The definition of youth varies considerably across countries and organisations, and even within a country. The Department of Youth Development in Bangladesh considers young people aged 18-35 as "youth," while the Bangladesh Bureau of Statistics (BBS) uses the age range 15-29 to define youth (which is also used by the UN). We have adopted the more inclusive definition in this paper as have others (BRAC 2018, Khatun and Saadat 2020).

this concern also grew to include school leavers whose numbers swelled although demand for their services in the labour market failed to keep pace (Morse 1970, Main 1987, Pattersen 1997) – leading to the question of the relationship between years of schooling or educational attainment, and prospects of employment (e.g., Mincer 1991, Gordon and Trow 1979). This question continues to intrigue researchers even today, and indeed it has further evolved to include those in tertiary education as well (Khatun and Saadat 2020, Galal 2002, Nakata *et al.* 2019, Mahmud *et al.* 2018, Broussard and Teklesselassie 2012, Msigwa and Kipesha 2013, Wu 2011).

Thus, the concern shifted from potential source of social unrest due to unemployed school dropouts to wasted public resources deployed in higher or tertiary education with the rise in graduate unemployment, driving down social and private returns (Psacharapoulos 1985, Psacharapoulos *et al.* 1996, Fiszbein and Psacharopoulos 1993, Birdsall 1996, Tilak 2004, Kingdon 1996).

Researchers have also tried to understand what factors are responsible for rising educated unemployment. This literature is large and involves an examination of supply and demand factors, as well as structural barriers that impede the labour market from clearing. On the supply side, frequent references have been made to "employability," implying a deficit in skill and quality of schooling as a major bottleneck (Islam 1980, Chisty, Uddin and Ghosh 2007, Alam 2008, Mason, Williams and Cramer 2009, Vivarelli 2014). This then raises the whole question of what a better educational system should look like–and in the context of many developing countries, blame has been apportioned to an over-supply of students with a general, liberal arts or science education, ill equipped to meet the more technical demands of the market. (Ilchman 1969, Psacharapoulos 1988, Majumder and Mukherjee 2013, Malamud and Pop-Eleches 2010).

The solution often put forward is to emphasize vocational and technical education, which seems to perform better but here the evidence is not unequivocal (see Blaug 1973, Oketch 2007, Malamud and Pop-Eleches 2010). An important issue raised by this literature relates to the quality of education, which, while intuitively attractive as an explanation, has been difficult to test, although attempts have been made to use grades, type of school (e.g., private or public) and subjects studied as proxies for quality.[8]

On the demand side, the most frequent observation is that the structure of demand has been shifting in many developing countries, in the face of rapid change in production technology and industrial diversification. These trends are expected

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[8]See I Bairagya 2015 for an India discussion, Piron (1972) for an early discussion on Philippines, and Mahmud *et al.* (2018) for a recent empirical exercise for Bangladesh.

to be reinforced as the world moves more forcefully into the fourth industrial revolution. However, these shifts have made it even more difficult to close the skill-training gap. Thus, high educated unemployment continues to co-exist with significant employment of foreign technical hands and mid-management employees – an area that has raised eyebrows, e.g., in Bangladesh.[9]

The structural dimensions alluded to include minimum wages, trade union activity, inadequate information flows, and mechanisms to bridge the supply-demand chasm. Potentially, this could even include factors like gender, location, parents' education, household land-ownership, caste, class and family income (Mathew 1995, Heyneman 2014, Majumder and Mukherjee 2013, Biyu 2009, Topel 1997, Mehar 1995).

Two closely related dimensions of youth or educated unemployment are the duration of unemployment and salaries earned. Here, important policy variables are similar to those affecting unemployment, e.g., education level, quality, grades, gender, location and family socio-economic background.

However, the most basic question is simply this: how do we estimate unemployment, especially educated or graduate unemployment? The definition used varies considerably and is critical. As Piron (1972) writes in the context of the Philippines, the notion of unemployment is far better suited to advanced industrialised countries rather than poor countries.[10] The author also notes that indeed, one could find or construct any definition of labour force or unemployment to generate almost any estimate one wished for! This dilemma is also pointed out by Asadullah (2014)[11] while commenting on the BC-EIU report[12] on graduate unemployment in South Asia which quotes a figure of 47 per cent for Bangladesh

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[9]While migration of Bangladeshis as guest workers abroad is a well-known phenomenon, the phenomenon of foreigners working in Bangladesh has begun to be noticed. While numbers are not known or perhaps officially not recorded, it is widely believed to be in the several hundred thousand, mainly employed in technical and mid-management positions in the dynamic readymade garments sector. The reasons put forward seem to be scarcity of suitable skills in Bangladesh. According to a business daily, "The government has no reliable information regarding the exact figure of foreigners employed in Bangladesh and their net income. According to Home Ministry sources, a total of 85,486 people is employed in Bangladesh from 44 countries, but the figure is 2.46 lakh according to the Special Branch of police" (*The Business Standard,* October 22, 2019).

[10]This observation was of course of much greater validity in 1972 compared to 2020, when many countries, especially in Asia (including Bangladesh), have made great strides in industrialisation.

[11]Niaz Asadullah (2014): Is Graduate Unemployment Really 47%? *The Daily Star*, Dhaka (Op Ed).

[12]BC-EIU (2014).

compared to a third for India and Pakistan. The report, however, provides no details of data, definition or methodology although it does warn against making country comparisons.[13]

Thus, any study must begin at the beginning and try to arrive at a 'reasonable' (rather than plausible) estimate of educated unemployment before moving ahead to explore, causes and correlates. This is what has been attempted in the paper where we examine youth unemployment by educational levels along with duration of unemployment and salaries earned, against standard variables found in the literature. It may be pertinent in this context to note that much of the South Asian literature has been devoted to estimation of unemployment amongst educated youth, and its distribution across space, class, caste, gender, and more generally examining factors, determinants and causes (Mathew 1995, for Kerala, Qayyum and Siddiqui 2007, for Pakistan, Khatun and Saadat 2020 and Islam 1980 for Bangladesh, and Mehrotra and Parida 2020 for India). The literature on duration and salaries or earnings figure much less prominently by comparison.[14]

For the purposes of this study where we are seeking to assess if the online findings can be validated, comparison would best be served with reference to findings from Bangladesh, and to an extent, the regional literature.

Youth unemployment and youth NEET (latter referring to those 'not in employment, education or training') by various educational levels, are reproduced in Table I.[15] A recent estimate from Bangladesh's nearest neighbour India, a country with whom Bangladesh shares a common history and culture, as well as similar institutions, is also presented for comparison.

We observe that the BIDS estimates are close to those generated by the recent literature. Interestingly, youth educated unemployment in Bangladesh is quite

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[13]Two other recent estimates are available for graduate unemployment in Bangladesh, both sponsored by the World Bank. Mahmud *et al.* (2018) find unemployment to be 38 per cent with an average wait time before getting of 10 months while Nakata *et al.* (2019) estimate the rate at 46 per cent. However, these are based on very different samples.

[14]Thus, the "duration" literature relates mostly to advanced countries (e.g., Stancanelli 1997, Ahn and Ugidos-Olazabal 1995, Røed and Zhang 2002). Dendir (2006) is a rare example from a developing country– Ethiopia).

[15]The use of NEET has gained popularity in developing countries even though its origin can be traced to advanced countries like the UK where the concern was with dropouts and young school leavers (aged 16-18) who were not employed, nor actively looking for work and not in any study or training programme. This raised worries about not only wasted human resources but also the potential threat of social exclusion and delinquency (e.g., Mascherini 2019 for a recent review).

similar to that of India, and if we compare with the data from Islam (1980), the decline over a 40-year period appears to have been modest.

TABLE I
**BANGLADESH - YOUTH EDUCATED UNEMPLOYMENT OR
YOUTH NEET IN DIFFERENT STUDIES (%)**

Education	India 2017-18 (Mehrotra and Parida, 2019)	ILO (2017), Toufique (2014)	(Mahmud *et al.* 2018; Khatun and Saadat 2018)	Nakata *et al.* 2019	Islam (1980)	BIDS 2020 (online survey)
SSC	14.4			-	-	26.8*
HSC	24.0			-	-	28.0*
BA	35.8		38.0 (Mahmud)	25.0-35.0	47.0	36.6*
MA	36.2			71.0	-	34.3*
Overall		27.4* (2017) 41.2* (2014)	30.0* (Khatun)	46.0**		33.2* 39.5ᵃ 29.1ᵇ

Note: *= youth NEET, otherwise= youth educated unemployment. ** Unemployment among BAs and MAs combined. ᵃ refers to a one- week reference period, while ᵇ refers to a one-month period. The denominator in all the BIDS estimates is the youth labour force, including for youth NEET. The ILO norm is to use the youth population as the denominator to estimate NEET, including youth in education/training. In other words, our definition represents a modified NEET where the focus is on those unemployed, and are not in education or training, as a share of the youth labour force. This modified NEET appears to have also been used by, e.g., Khatun and Saadat (2020) and makes more sense in the context of the definition of youth used (those aged 18-35 – also see footnote 17).

III. METHODOLOGY: DATA AND SAMPLING

This paper defined 'youth' following the definition used by the Ministry of Youth and Sports (see *National Youth Policy 2017*), namely citizens of Bangladesh in the age group of 18 to 35 years. Thus, the survey was conducted on educated youths with at least an SSC degree, who were engaged in part-time, full-time or piece rate work, or alternatively, searching for work.[16]

The survey was conducted online through Facebook (FB) advertisement - a promising and low-cost way to collect survey data. According to a BRAC report, around half of the youth population have internet access of which over 90 per cent use social media with Facebook dominating this segment. According to one source, there are 35.8 million Facebook users in Bangladesh, out of which 24.7 per cent

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[16]The wider, age-inclusive definition used here may affect findings. It is possible that a significant number would belong to the more "mature" young category, while others are likely to be married with families – factors likely to have a bearing on age, employment and earnings. See also footnote 7 above.

are women.[17] In terms of use by youth (aged 18-35), there are nearly 27 million Facebook users in this category, accounting for almost half of the youth population.[18]

Initially, a pilot survey was conducted focusing on 25,000 target individuals through FB, and among them 550 individuals responded. After analysing the data, we found that some questions needed to be made clearer as these tended to be misunderstood. So, after the first pilot survey, the questionnaire was carefully reviewed and modified. Subsequently, another pilot survey targeting 5,000 individuals was conducted and 190 individuals responded. The second pilot survey was successful so it was decided to proceed with the revised. This time, we reached 618,262 target individuals through advertisements, out of which 2.4 per cent or 15,073 persons completed the questionnaire.[19] Of these, 48 questionnaires were found with errors, leaving us with a total of 15,025 respondents. The total process took less than 2 weeks.

While conducting the survey a 50:50 ratio was sought to be maintained between tertiary (BA/BSC and MA/MSC) graduates and school graduates (SSC/HSC). In addition, a survey minimum gender ratio of 65:35 in favour of males was targeted, along with an adequate geographical (rural/urban) distribution. In other words, the objective was to obtain a reasonable representation of the Bangladesh Facebook population belonging to our targeted audience.

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[17] https://napoleoncat.com/stats/facebook-users-in-bangladesh/2019/11

[18] One may be tempted to assume that a survey based on Facebook (which excludes barely half the youth population) may lead to over-representation of better off and better educated people. This would tend to result in lower employment on average, than otherwise might have been the case. The authors are thankful to the anonymous referee for pointing this out.

[19] There is a large body of work on the quality, responsiveness and measurement aspects of online surveys in the context of advanced countries but few for developing countries (Nulty 2008, Evans and Mathur 2005, Cook, Heath and Thompson 2000, De Leeuw 2012). Popular approaches include email, SMS text messaging and data mining using web-based platforms. In general, response rates are better from younger and more educated persons (Deutskens, Ruyter and Oosterveld 2004). According to the seminal work of Cook, Heath and Thompson (2004), what is much more important for online surveys is not so much the response rate (which tends to be low) but its representativeness. In this paper, validity has been assessed by comparing the online findings with those based on traditional field surveys.

IV. ANALYSIS

Given that both the dependent and explanatory variables generated were mainly discrete/categorical in nature – due to the nature of the data-generation platform, the initial exploratory analysis was performed using cross-tabulations, and associations were tested using the chi^2 test. In addition, probit regressions were used with unemployment status, unemployment duration and salary levels as dependent variables to see how these respond to variables like education and grades, controlling for variables like parents' education, land and family income, type of school, location, etc. The generic form of the probit model is given below:

$$Y_i^* = \beta_{10} + \beta_{11} X_1 + \beta_{12} X_2 + ... + \beta_{13} Z_1 + \varepsilon_i$$

where, $Y = 1$ if $Y_i^* > 0$, and $Y_i = 0$ otherwise, where $Y_i = 1$ indicates choice 1 is selected

X_1 = category explanatory variable e.g. educational status, grades

X_2.. = Other category explanatory variables

Z_1.. = continuous variables

ε_i = error term

The interpretation of results from the model is as follows:

It tells us what effect a one-unit increase in the variable Z_1 has on the z-score. If the explanatory variable is a factor variable, the interpretation is slightly different. Here, the unit change refers to the shift with reference to the base value. Thus, in the case of gender, we could say what effect will a change from "male" (base value) to "female" will have on the z score.

A more intuitively appealing way to interpret the results is to compute predictive margins for each of the predictor variables of interest, holding all other variables constant at their means. These "margin" estimates are the predicted probabilities of being in a particular category of the outcome variable.

V. RESULTS

Profile of Employment and Unemployment amongst Educated Youth

Age

The average age of the sample respondents is 24.4 with no significant gender difference in age. The age distribution by employment/study status is given below. The average age of the unemployed is 25.6 years, while full-time workers are between 26 and 27 years. Part-timers and those in study tend to be younger.

TABLE II

SAMPLE AGE DISTRIBUTION BY STUDY/WORK STATUS

SL	Description	Age
1	Currently in study or training	21.1
2	Currently in training and looking for a job	24.4
3	Currently studying and looking for a job	21.8
4	Full-time salary work	27.7
5	Full-time self-employed	26.4
6	Part-time salary work	23.7
7	Part-time self-employed	24.1
8	Unemployed (NEET)	25.6

Employment

The sample size was 15,025 pertaining to Bangladeshi youth (aged 18-35) who are active online. Out of this, 3,780 (25.2 per cent) were in full-time salaried employment, 494 (3.3 per cent) were in full-time self-employment, 1078 (7.2 per cent) were part-time salaried employment and 508 (3.4 per cent) were in part-time self-employment. A total of 6,254 (41.6 per cent) respondents were NOT in the labour force as they were engaged in education and/or training. In other words, there were 8,771 respondents who can be deemed as being in the labour force. The rate of employment/unemployment (as a proportion of the labour force) works out as follows:

- Full-time employment: 48.7%
- Part-time employment: 18.1%
- Salary-based work (full- or part-time)   55.4%
- Self-employed (full- or part-time)   11.4%
- Unemployed (NEET – current status)   33.2%
- Unemployed (reference period is 1 week)   39.5%
- Unemployed (reference period is 1 month)   29.1%

Gender

The sample labour force by gender is 2,689 (30.3 per cent) for female and 6,182 (69.7 per cent) for male. In terms of employment status, males are significantly better represented in full-time work (especially salaried work) while females and males are fairly equally distributed in terms of part-time work and self-employment. The overall distributions are given below where we find that

unemployment (NEET) is significantly higher for females (38.1 per cent) compared to males (31.1 per cent).

TABLE III
GENDER AND EMPLOYMENT

Employment Status	Female	Male	Total
Full-time	1,175	3,099	4,274
	(43.7)	(51.0)	(48.7)
Part-time	492	1,094	1,586
	(18.3)	(18.0)	(18.1)
Total	1,667	4,193	5,860
	(62.0)	(69.0)	(66.8)
Unemployed	1,022	1,889	2,911
	(38.1)	(31.1)	(33.2)
Sample labour force	2,689	6,082	8,771
	(100.0)	(100.0)	(100.0)

Note: Figures in brackets are per cent.

Location

In terms of locational characteristics, the distribution of employment status is shown in Table IV. Although villages are marked by relatively high unemployment, full-time salaried employment of 30 per cent is a surprising finding (rather than part-time employment or self-employment). It is also found that Metropolitan areas are best for salaried work, while towns have the lowest unemployment rate (although not significantly different from unemployment in metropolitan areas).

Education

Full-time salaried work is the highest for post-graduates, followed by bachelor degree holders, and lowest for HSC graduates – even lower than SSC graduates. The reverse is true for full-time self-employment: highest for SSC, followed by HSC, BA and MA graduates.

On the other hand, part-time employment is the highest for HSC, followed by SSC, BA and MA. Interestingly, overall unemployment is the lowest for SSC and HSC (27-28 per cent), the highest for BA (36.6 per cent), closely followed by MA (34.3 per cent).

TABLE IV
TABULATION OF EMPLOYMENT STATUS AND LOCATION

	City	Metropolitan	Town	Village	Total
Full-time salaried work	697	2,365	412	306	3,780
%	41.7	45.7	44.3	30.8	43.1
Full-time self employment	69	274	68	83	494
%	4.1	5.3	7.3	8.4	5.6
Part-time salaried work	235	628	124	91	1,078
%	14.1	12.13	13.3	9.2	12.3
Part-time self-employed	89	322	43	54	508
%	5.3	6.2	4.6	5.4	5.8
NEET	580	1,589	283	459	2,911
%	34.7	30.7	30.4	46.2	33.2
Total	1,670	5,178	930	993	8,771
%	100.0	100.0	100.0	100.0	100.0

TABLE V
EMPLOYMENT STATUS BY EDUCATION

Employment Status	Education Level				
	SSC	HSC	BA	MA	Total
Full-time salaried work	118	647	1,321	1,694	3,780
%	36.7	28.3	**42.5**	**55.5**	43.1
Full-time self-employment	32	180	183	99	494
%	9.9	7.8	5.9	3.2	5.6
Part-time salaried work	50	538	329	161	1,078
%	15.6	23.5	10.6	5.3	12.3
Part-time self-employed	35	282	138	53	508
%	10.9	12.3	4.4	1.7	5.8
NEET	86	639	1,138	1,048	2,911
%	26.8	27.9	36.6	34.3	33.2
Total	321	2,286	3,109	3,055	8,771
%	100.0	100.0	100.0	100.0	100.0

Salary

Those who are working full-time on own account or as salaried workers were asked to indicate their salary or earnings range. This information is interesting because it allows us to explore salary earnings by educational level. As expected, the salary differential between SSC/HSC passed groups versus those with higher qualifications is large. What is even more interesting is the much higher pay obtained by postgraduate youth compared to those only with a bachelor degree. Clearly, the reason why students tend to continue on to a post-graduate education

in this dimension of the job market – the chance of more highly paid regular work even if the probability is not high.

TABLE VI
TABULATION OF SALARY BY EDUCATION LEVEL

Salary range per month (BDT)	Education Level				
	SSC	HSC	BA	MA	Total
10000 - 20000	66	410	468	384	1,328
	44.0	50.4	31.7	21.4	31.4
20,000 – 30,000	10	106	366	454	936
	6.7	13.0	24.7	25.4	22.1
30,000 – 40,000	2	22	206	332	562
	1.3	2.7	**13.9**	**18.5**	13.3
Less than 10,000	72	247	169	106	594
	48.0	30.3	11.4	5.9	14.0
More than 40,000	0	29	269	515	813
	0.0	3.6	**18.2**	**28.8**	19.2
Total	150	814	1,478	1,791	4,233
	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*.

Parents' Education and Family Income

Parents' education appears to have an effect on employment outcomes of their wards, but the picture is complex. We find that higher education level of mothers is associated with lower unemployment, while this is not so clear in the case of fathers' education. On the other hand, if we look at the prevalence of full-time salaried jobs (the desired outcome for most respondents), we see an inverse relationship with mothers' education but a more positive association with fathers' education.

TABLE VII
FATHERS' EDUCATION AND EMPLOYMENT

Father's Education	Full-time salaried work of respondents (%)	Unemployment of respondents (%)
SSC	14.4	15.3
HSC	19.6	17.7
BA	24.4	22.6
MA	14.7	12.7

Table VII shows that the prevalence of full-time salaried jobs increases with the level of fathers' education up to BA-level, and then it drops. A similar trend can be seen for unemployment rates - a rising trend in the unemployment rate is associated with father's education level, up to BA, and then quite a dramatic drop takes place for post-graduate fathers. This association between fathers' education, on the one hand, and salaried work and overall unemployment, on the other, appears contradictory and is difficult to explain. This essentially seems to suggest that the market for salaried work is different from non-salaried work. While for the former, the association is as one would expect, for the latter, this is unexpected and indicative perhaps that non-salaried work consists largely of low-paid, low-skilled work that is not in demand from those better off or better educated. The expectation that better educated parents result in better employment outcomes for children is broadly correct, at least as far as the formal (salaried) labour market is concerned.

A strong association is also seen between employment status of respondents and their reported family income range per month (Table VIII). At higher family income levels, the incidence of employment is relatively much higher and unemployment much lower. In fact, family income seems to be a better predictor of employment than parents' education level.

TABLE VIII
EMPLOYMENT STATUS AND FAMILY INCOME (%)

Employment Status	30000-50000	50000-100000	Greater than 100000	Overall average
Full-time salary	52.4	57.1	61.5	**43.0**
Full-time self	5.9	6.4	8.3	**5.6**
Part-time salary	8.8	14.0	7.3	**12.4**
Part-time self	6.6	4.1	6.3	**5.7**
Unemployed	26.3	18.4	16.6	**33.2**

Family Location and Land Ownership

There appears to be no relationship between employment status and location of the respondents' families by rural/urban areas. In this sense, therefore, there is no rural-urban divide. If we examine- if there is an association between family land ownership and employment of wards, we note that unemployment is significantly lower for larger land-owning families while full-time salaried employment is similarly greater for larger land owners. However, for those families below the 2-acre category, full-time employment is higher for marginal land-owners while part-time work is lower. In fact, except for the 0.5-2.0 acres category, all other land-ownership categories have a similar employment profile. This "discrepant"

category is very important for Bangladesh in numerical terms, but at this point, we are not able to explore this further and must remain satisfied with flagging this also, for further research.

TABLE IX

EMPLOYMENT BY 'PERMANENT ADDRESS' (URBAN/RURAL) (NUMBERS)

Employment Status	Urban	Rural (including rural towns)
Full-time work	1,472	2,773
	(49.4)	(48.0)
Part-time work	513	1,069
	(17.2)	(18.5)
NEET	993	1,902
	(33.4)	(32.3)
Total	**2,978**	**5,774**
	(100.0)	**(100.0)**

TABLE X

FAMILY LAND AND EMPLOYMENT (NUMBERS)

	>5 acres	2-5 acres	0.5-2 acres	<0.5 acres
Full-time (salary)	157	347	638	2,418
	46.6	46.3	**38.3**	44.1
Full-time (self)	29.0	47	113	287
	8.6	6.3	6.8	5.2
Part-time (salary)	34	102	238	670
	10.1	13.6	14.3	12.2
Part-time (self)	23	50	118	294
	6.8	6.7	7.1	5.4
NEET	94	204	559	1,814
	27.9	27.2	**33.6**	33.1
Total	**337**	**750**	**1,666**	**5,483**
	100.0	**100.0**	**100.0**	**100.0**

Note: Second rows within cell are column percentages.

Grades, Subjects and School Status

Grades

Grades matter–and this is especially true for tertiary graduates (BA and MA) where we note that better grades are associated with lower unemployment, as well as higher full-time salaried employment. At lower educational attainment levels, the picture is less clear-cut. Thus, for higher secondary school graduates (HSC), better grades are associated with lower unemployment, but the influence on full-time salaried employment is not evident.

For SSC, better grades reduce unemployment; however, a score of GPA 5 (the highest score) does not seem to indicate better access to full-time salaried work compared to a GPA score of less than 3, although those getting a first division

reveal far better outcomes – perhaps due more to age and experience rather than the grade obtained (Table X).[20]

If we examine employment status by subject streams, we see that for SSC and equivalent groups, students of 'Arts' fare the worst, while O-level and vocational students demonstrate the best outcomes. In between, we have the other groups including Science, Commerce, and *Dakhil* (madrasah students at SSC equivalent level) with employment/unemployment performance being quite close to each other. Interestingly, a *Dakhil* background does not have any particular disadvantage compared to Science and Commerce students (Table XI).

For HSC graduates, Science and especially vocational streams perform well, while Arts and *Alim* (Madrasah degree equivalent to HSC) fare quite poorly (Table XI).

At each and every level of education, the employment outcome is better for those who studied in private institutions versus those who were in public/government institutions. This is the most pronounced for post-graduates (MA) where the unemployment rate is 25.7 per cent for private and 36.2 per cent% for public. For full-time work, the figures are 60 per cent and 54 per cent respectively (Table XII).

TABLE XI
IMPACT OF RESULTS/GRADES

Exam/Result	Unemployment Rate	Full-time Salaried Work Rate
SSC Results		
First division	19.4	63.2
GPA 5	33.0	39.1
GPA<3	36.9	41.8
Average (SSC)	*33.2*	*43.0*
HSC Results		
First	27.9	53.4
GPA 5	31.2	42.5
GPA<3	36.2	42.6
Average (HSC)	*33.5*	*43.4*
BA Results		
First	27.9	54.0
GPA 3.5-4.0	31.2	57.2
GPA<3.0	36.2	41.0
Average (BA)	*33.5*	*49.1*
MA Results		
First division	34.4	59.7
GPA 3.5-4.0	29.6	62.4
GPA<3.0	48.2	40.2
Average (MA)	*34.3*	*55.5*

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[20] Those reporting a "first" or "second" division belong to an older age cohort, while those reporting a "GPA" score are younger, given that the grading system was converted to the current GPA system from 2004.

TABLE XII
IMPACT OF SUBJECT/STREAM

Examination/Subject	Unemployment Rate	Full-time Salaried Work Rate
SSC		
Science	32.2	43.7
Arts	**43.1**	**36.3**
Commerce	32.8	43.2
Dakhil	31.9	42.9
Vocational	**30.3**	**55.2**
Other (e.g. O-level)	18.6	66.0
Average	33.2	43.0
HSC		
Science	32.6	44.8
Arts	**37.9**	**37.2**
Commerce	33.0	43.4
Alim	**35.9**	**36.8**
Vocational	**31.2**	**49.4**
Average	33.5	43.4

TABLE XIII
ASSOCIATION OF EMPLOYMENT WITH INSTITUTION TYPE
(PUBLIC/PRIVATE)

	Unemployment Rate	Salaried Employment Rate
SSC		
Public/Government	32.7	43.4
Private	30.3	44.5
Other	34.8	42.3
HSC		
Public/Government	34.6	42.7
Private	30.5	45.1
Other	25.6	42.2
BA		
Public/Government	36.5	49.1
Private	33.2	48.3
Other	37.0	49.0
MA		
Public	36.2	54.4
Private	25.7	60.1
Other	37.7	55.8

Unemployment Duration

An important aspect of the employment issue relates to the duration of unemployment faced after completing education and entering the labour market.

At 6 months, over 50 per cent remain unemployed–slightly less for women. At over 24 months, 18 per cent are still unemployed with men enjoying a slight advantage.

TABLE XIV
DURATION OF UNEMPLOYMENT AND GENDER

How long have you been unemployed after completing your education	Gender		
	Female	Male	Total
12 months to 24 months	147	347	494
	12.7	11.3	11.7
6 months to 12 months	226	601	827
	19.5	19.6	19.5
Less than 6 months	570	1,578	2,148
	49.2	51.3	50.7
More than 24 months	216	548	764
	18.6	17.8	18.1
Total	1,159	3,074	4,233
	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*.

Location

Location is generally considered important as people tend to gravitate towards locations where employment opportunities are superior. As to be expected, we do see a superior outcome for metropolitan and city locations compared to town and village (Table XV). The proportion of people with a waiting period of fewer than 6 months is much higher in, for example, metropolitan areas (59 per cent) compared to village (21 per cent). Similarly, a longer waiting time is associated with village and town compared to, for example, metropolitan and city areas (43 per cent in village and 14 per cent in metropolitan areas).

TABLE XV
UNEMPLOYMENT BY CURRENT LOCATION

How long have you been unemployed after completing your education	Your current location				
	City	Metropolitan	Town	Village	Total
12 months to 24 months	124	231	78	61	494
	16.3	8.9	16.4	15.9	11.7
6 months to 12 months	144	489	114	80	827
	18.9	18.7	23.9	20.9	19.5
Less than 6 months	377	1,527	165	79	2,148
	49.5	58.5	34.6	20.6	50.7
More than 24 months	117	364	120	163	764
	15.4	13.9	25.2	42.6	18.1
Total	762	2,611	477	383	4,233
	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*.

Education Level

The general pattern that is evident from Table XVI is that higher the education level, more the incidence of low unemployment duration (less than 6 months), while the opposite is true for higher duration periods (e.g., more than 24 months). In the case of individuals with MA degrees, we see a deviation: The incidence of low duration is lower and the incidence of higher duration is higher for this group compared to individuals with BA degrees–showing that while individuals with MA degrees do earn more salary (see Table XXIII), their job prospects are likely to be worse than those with BA degrees.

Type of Institution

Private university education is gaining ground. We report unemployment duration and full-time work data by private-public universities in Tables XVII-XVIII. At less than 6 months of unemployment duration, the unemployment rate for public university graduates is 50.2 per cent compared to 59.1 per cent for private university graduates. At 24 months or more, the unemployment rate falls to 17.5 per cent (a drop of 32.7 percentage points) for graduates of public institutions, and to 10.7 per cent (a drop of 48.4 percentage points) for students from private institutions. Overall, if we focus on unemployment, private university graduates perform much better (Table XVII).

In the case of full-time work for those with a MA degree, the story is similar: between less than 6 months and over 24 months of unemployment, the drop in the share of graduates performing full-time work is 28.1 per cent for public universities and 34.4 per cent for private universities (Table XVIII). The students of private institutions fare better in terms of both duration of unemployment and incidence of full-time employment. This is true for both BAs and MAs but especially pronounced for BAs.

TABLE XVI

DURATION OF UNEMPLOYMENT AND EDUCATION LEVEL

How long have you been unemployed after completing your education	SSC	HSC	BA	MA	Total
12 months to 24 months	23	99	143	229	494
	15.3	12.2	9.7	12.8	11.7
6 months to 12 months	30	150	290	357	827
	20.0	18.4	19.6	19.9	19.5
Less than 6 months	37	334	916	861	2,148
	24.7	**41.0**	**61.9**	**48.1**	**50.7**
More than 24 months	60	231	129	344	764
	40.0	**28.4**	**8.7**	**19.2**	**18.1**
Total	150	814	1,478	1,791	4,233
	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*

TABLE XVII

UNEMPLOYMENT DURATION BY INSTITUTION, BAS

How long have you been unemployed after completing your education	Type of institution of the Bachelor or equivalent degree			
	Others	Private	Public	Total
12 months to 24 months	17	126	265	408
	12.9	8.6	13.7	11.5
6 months to 12 months	19	316	361	696
	14.4	21.6	18.6	19.7
Less than 6 months	59	864	973	1,896
	44.7	59.1	50.2	53.6
More than 24 months	37	157	340	534
	28.0	10.7	17.5	15.1
Total	132	1,463	1,939	3,534
	100.0	100.0	100.0	100.0

Notes: First row has *frequencies* and second row has *column percentages.*

TABLE XVIII

FULL-TIME WORK BY INSTITUTION, MAS

How long have you been unemployed after completing your education	Type of the institution of Masters or equivalent degree			
	Others	Private	Public	Total
12 months to 24 months	6	31	192	229
	13.3	8.3	13.9	12.8
6 months to 12 months	7	71	279	357
	15.6	19.1	20.3	19.9
Less than 6 months	17	199	645	861
	37.8	53.5	46.9	48.1
More than 24 months	15	71	258	344
	33.3	19.1	18.8	19.2
Total	45	372	1,374	1,791
	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*

Grades

Grades matter for both BA and MA degree holders but seems to matter even more for MAs. In the case of BAs, at unemployment duration of fewer than 6 months, unemployment levels rise with grades, e.g., from 50.6 per cent to 63.2 per cent (Table XIX). At over 24 months, the drop in unemployment is greater at higher grades, e.g., to 15.5 per cent for GPA 2.5-3.0 and 8.2 per cent for GPA 3.5-4.0 (Table XIX). Grades are certainly very important in the labour market for BAs.

If we turn to MA degree holders, we see a similar trend although in this case the importance of grades is even more pronounced (see the rows in bold, Table XX). At less than 6 months duration of unemployment, unemployment is lower for low GPA achievers, but with time, this is totally reversed. Thus, for someone with a GPA of 3.5-4, the probability of being unemployed is less than 10 per cent, while for those with a GPA of 2.5-3.0, the probability of unemployment is 27 per cent, at the end of two years.

TABLE XIX

UNEMPLOYMENT DURATION AND BA GRADES

Unemployment duration	CGPA 2.5 - 3	CGPA 3 - 3.5	CGPA 3.5 - 4	First Class	Second Class	Total
12 months to 24 months	102	143	42	17	68	390
	14.8	10.6	7.2	13.9	11.3	11.5
6 months to 12 months	132	292	124	15	105	675
	19.1	21.7	21.3	12.3	17.4	19.9
Less than 6 months	349	770	368	69	249	1,830
	50.6	**57.2**	**63.2**	**56.6**	41.4	53.8
More than 24 months	107	141	48	21	180	506
	15.5	**10.5**	**8.3**	**17.2**	29.9	14.9
Total	690	1,346	582	122	602	3,401
	100.0	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

TABLE XX

UNEMPLOYMENT DURATION AND MA GRADES

Unemployment duration	CGPA 2.5 - 3	CGPA 3 - 3.5	CGPA 3.5 - 4	First Class	Second Class	Total
12 months to 24 months	33	94	46	14	42	229
	21.2	14.3	10.4	9.2	11.1	12.8
6 months to 12 months	34	146	84	38	55	357
	21.8	22.2	18.9	24.8	14.5	19.9
Less than 6 months	47	320	272	60	160	861
	30.1	**48.7**	**61.4**	39.2	42.2	48.1
More than 24 months	42	97	41	41	122	344
	26.9	**14.7**	**9.3**	26.8	32.2	19.2
Total	156	657	443	153	379	1,791
	100.0	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages*

Salary Levels

Gender and Location

There is a small gender difference between male and female in favour of males (Table XXI). Females are over-represented in low-pay work and under-represented in high-pay work.

The cut-off point seems to be around BDT 30,000 – below this level, there are relatively more women and above this level, there are relatively more men. It is interesting to observe, nevertheless, that the gender differences are small.

In terms of location, higher salary levels are more closely associated with metropolitan and city areas compared to town and village – and the differences are large (Table XXII). Thus, for the "more than 40K" salary range, 24 per cent and 18 per cent of the respective labour force are in metropolitan and city areas,

respectively. The figures for town and village are far lower at 10 per cent and 3 per cent. Similarly, at low levels of salary, we see a relatively high representation from town and village compared to metropolis and city.

TABLE XXI

SALARY AND GENDER

From the Full-time job how much is your monthly income	Gender		
	Female	Male	Total
10,000 – 20,000	359	969	1,328
	30.9	31.5	31.4
20,000 – 30,000	277	659	936
	23.9	21.4	22.1
30,000 – 40,000	135	427	562
	11.7	13.9	13.3
Less than 10,000	180	414	594
	15.5	**13.5**	**14.0**
More than 40,000	208	605	813
	17.9	**19.7**	**19.2**
Total	1,159	3,074	4,233
	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

TABLE XXII

SALARY AND LOCATION

From the Full-time job how much is your monthly income	Your current location				
	City	Metropolitan	Town	Village	Total
10,000 – 20,000	201	795	160	172	1328
	26.4	30.5	33.5	44.9	31.4
20,000 – 30,000	189	580	96	71	936
	24.8	22.2	20.1	18.5	22.1
30,000 – 40,000	85	401	58	18	562
	11.2	15.4	12.2	4.7	13.3
Less than 10,000	151	217	116	110	594
	19.8	**8.3**	**24.3**	**28.7**	14.0
More than 40,000	136	618	47	12	813
	17.9	**23.7**	**9.9**	**3.1**	19.2
Total	762	2,611	477	383	4,233
	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

Education

The figures are stark (Table XXIII). Those who have an SSC or HSC degree cannot really hope to get a job paying much over BDT 20,000. Further, while the difference between BA and HSC/SSC degree holders is enormous, the difference between BA and MA degree holders is also wide. Nearly 30 per cent of MA degree holders are able to obtain a salary level of BDT 40,000 or more compared to only 18 per cent for BA degree holders. For SSC graduates, this is 0 per cent and for HSC ones, this is 3.6 per cent. As far as salary is concerned, education matters.

TABLE XXIII
SALARY AND EDUCATION

From the Full-time job how much is your monthly income	SSC	HSC	BA	MA	Total
10,000 – 20,000	66	410	468	384	1,328
	44.0	50.4	31.7	21.4	31.4
20,000 – 30,000	10	106	366	454	936
	6.7	13.0	24.7	25.4	22.1
30,000 – 40,000	2	22	206	332	562
	1.3	2.7	**13.9**	**18.5**	13.3
Less than 10,000	72	247	169	106	594
	48.0	30.3	11.4	5.9	14.0
More than 40,000	0	29	269	515	813
	0.0	3.6	**18.2**	**28.8**	19.2
Total	150	814	1,478	1,791	4,233
	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

Grades

Grades matter but only for the highest and lowest salary ranges (below 10,000 and above BDT 40,000) – and this is true for both BA and MA degree holders. At the lower ranges of salary, there are relatively fewer people from higher grades, while for higher ranges there are relatively many more from those who obtained higher grades. It is in the middle ranges where the relationship between salary and grades weaken off.

TABLE XXIV
SALARY AND GRADES – BA RESULTS

	CGPA 2.5 – 3.0	CGPA 3.0- 3.5	CGPA 3.5 – 4.0	First Class	Second Class	Total
10,000 – 20,000	270	333	111	34	183	954
	39.1	24.7	19.1	27.8	30.4	28.1
20,000 – 30,000	153	365	109	23	178	843
	22.2	27.12	18.7	18.9	29.6	24.8
30,000 – 40,000	88	228	109	29	70	537
	12.8	16.9	**18.7**	**23.8**	11.6	15.8
Less than 10,000	103	89	27	6	56	285
	14.9	6.6	4.6	4.9	9.3	8.4
More than 40,000	76	331	226	30	115	782
	11.0	24.6	**38.8**	**24.6**	19.1	22.9
Total	690	1,346	582	122	602	,3401
	100.0	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

TABLE XXV

SALARY AND GRADES, MA RESULTS

	CGPA 2.5 - 3	CGPA 3 - 3.5	CGPA 3.5 - 4	First Class	Second Class	Total
10,000 – 20,000	49	116	62	42	115	384
	31.4	17.7	14.0	27.5	30.3	21.4
20,000 – 30,000	39	174	76	35	129	454
	25.0	26.5	17.2	22.9	34.0	25.4
30,000 – 40,000	23	138	98	22	51	332
	14.7	21.0	**22.1**	**14.4**	13.5	18.5
Less than 10,000	26	32	6	15	26	106
	16.7	4.87	1.35	9.80	6.86	5.92
More than 40,000	19	197	201	39	58	515
	12.2	29.9	**45.4**	**25.5**	15.3	28.8
Total	156	657	443	153	379	1791
	100.0	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

Institutional Type

Previously, we noted the edge of private educational institutions over public ones in terms of employment. In terms of salary levels, this is reversed as public institutions fare better. At the BDT 30,000-40,000 salary range, the representation of public institutions is 17 per cent, and for over the BDT 40,000 range, the figure goes up to 25 per cent. This compares with 15 per cent and 20 per cent for those from private institutions (Table XXVI). The pattern is similar for MAs (not reported).

TABLE XXVI

SALARY AND INSTITUTIONAL TYPE (BAS)

From the Full-time job how much is your monthly income	Type of institution of the Bachelor or equivalent degree			
	Others	Private	Public	Total
10,000 – 20,000	42	471	490	1,003
	31.8	32.2	25.3	28.4
20,000 – 30,000	29	382	456	867
	21.9	26.1	23.5	24.5
30,000 – 40,000	14	212	323	549
	10.6	**14.5**	**16.7**	15.5
Less than 10,000	26	112	181	319
	19.7	7.7	9.3	9.0
More than 40,000	21	286	489	796
	15.9	**19.6**	**25.2**	22.5
Total	132	1463	1939	3534
	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

Salary and Father's Education

There appears to be a strong effect of father's education on salary obtained by wards. If we look at the higher salary ranges (i.e., the two rows shown in bold in Table XXVII), we notice the steady increase in the proportion of people as we move up the education ladder. The converse is true for those in the lower ranges

of salary. This seems to point to an inter-generational effect of education with strong policy implications that are generally overlooked. Of course, this association could be spurious but a more reasonable hypothesis would be that fathers' education is a proxy for socio-economic status and investment in education of children. It is also likely to reflect better networks and social capital.

TABLE XXVII

SALARY AND FATHER'S EDUCATION STATUS

From the Full time job how much is your monthly income	Masters	Bachelors	HSC	SSC	Eight Grade	Fifth Grade	Total
10,000 – 20,000	113	271	236	234	206	244	1304
	18.9	26.7	29.0	39.1	38.7	39.3	31.2
20,000 – 30,000	162	240	187	126	118	92	925
	27.2	23.7	23.0	21.1	22.2	14.8	22.2
30,000 – 40,000	109	155	111	65	68	53	561
	18.3	**15.3**	**13.6**	**10.8**	12.8	8.5	13.4
Less than 10,000	43	84	120	85	74	174	580
	7.2	8.3	14.7	14.2	13.9	28.0	13.9
More than 40,000	169	264	159	88	66	58	804
	28.4	**26.0**	**19.6**	**14.7**	12.4	9.3	19.3
Total	596	1014	813	598	532	621	4174
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: First row has *frequencies* and second row has *column percentages.*

VI. EXPLORING EMPLOYMENT AND UNEMPLOYMENT CHARACTERISTICS–SOME PROBIT REGRESSION RESULTS

So far, what we have attempted to do is to explore bivariate associations between employment status or earnings, on the one hand, and a host of variables of interest, on the other, with the latter pertaining to individual characteristics (e.g., age, gender, examination results at different levels, education, type of school attended), family characteristics (parents' education, income, land-ownership), and locational characteristics (e.g., rural/urban).

Given that the dependent variable, we are most concerned with here is the employment/ unemployment status (that takes on discrete values of 1 and 0)) and that most predictor variables obtained from the online survey are category variables, a probit or logit regression model could be used. We have opted for the use of probit models although either would serve the purpose equally well.

Two other labour-market related dependent variables were also explored separately, namely unemployment duration and salary levels. Both of these were specified as "high=1, otherwise=0" and "low=1, otherwise=0". For unemployment duration, "high" refers to a duration of more than 24 months and "low" refers to a

duration of fewer than 6 months. For salary levels, "high" refers to a salary of more than BDT 40,000 per month, while "low" refers to a salary level of BDT 10,000 or less per month.

Explanatory variables for all models relate to individual (age, gender, grades, education level, subjects studied, etc.), location (current location, permanent address), school type (public/private) and family socio-economic variables (parents' education, land, family income per month, family size). Except for age and family size, all explanatory variables are factor variables and assumed to be exogenous.[21]

Determinants of NEET [22]

We explore NEET in terms of education and grades, but also examine the effect of gender, location, as well as some family socio-economic characteristics. We see that the education level is positively and significantly related to NEET status. We also note that the coefficient associated with MA degree holders is much higher than BA holders, suggesting that the incidence of unemployment is much higher among MAs. This becomes clearer if we examine the margins column which indicates that the probability of unemployment for MAs is 38 per cent compared to 31 per cent for BAs and only 19 per cent for HSC holders.

We also observe that compared to females, males do better in the labour market, as also reported in other studies (e.g., Khatun and Saadat 2020). In particular, the probability of unemployment for a male is 31 per cent compared to 39 per cent for females.

Other variables found significant were family size (associated with higher unemployment), age (negative association) and location (e.g. village, metropolitan areas, towns). In particular, village residents are clearly at a disadvantage compared to city residents while town and metro areas do much better. Thus, the probability of a village resident to be unemployed is around 45 per cent, whereas

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[21]We considered using an instrumental variable (IVPROBIT) model instead but given that the endogenous variables are discrete, this is not permissible. Likely instruments, if used, would have been mother's education, fathers' education and possibly family income or land owned. These have been included as additional control variables on the right-hand side.

[22] "..pseudo R-squareds cannot be interpreted independently or compared across datasets. A pseudo R-squared only has meaning when compared to another pseudo R-squared of the same type, on the same data, predicting the same outcome" (https://stats.idre.ucla.edu/other/mult-pkg/faq/general/faq-what-are-pseudo-r-squareds). It is likely, however, that the low score was affected by the specification of most variables which were discrete and categorical, and varied within a limited range.

this falls to 27 per cent for towns, 32 per cent for metro, and 35 per cent for city. Mothers' education has a positive and significant association with unemployment.[23] In addition, marriage, type of high school attended (e.g., private, public) and family incomes have a strong influence on unemployment. In the case of marriage, male employment is positively impacted relative to female employment. The relevant coefficients and predicted marginal effects are reported below.

The association between mothers' education and unemployment is counter intuitive and is not in agreement with the findings of e.g., Khatun and Saadat (2020). The reason is likely to be related to higher aspiration levels of better educated mothers, controlling for all other variables, including income.

Family income appears to have a very strong positive influence on employment status. This appears to be a powerful proxy variable for power and influence enjoyed by the family that probably plays a significant role in improving employment outcomes of school or college leavers, as reflected in the sharp drop in the likelihood of unemployment for those from the upper income categories (Table XXVIII).

TABLE XXVIII
PROBIT REGRESSIONS AND MARGINAL EFFECTS (DEPENDENT=NEET)

Variable	Reg. Coefficient	Marginal effects
HSC (base)		.191***
		(.019)
BA	0.373***	.309***
	(0.073)	(.010)
MA	0.561***	.378***
	(0.077)	(.010)
Mothers' education	0.035**	.011***
	(0.017)	(.005)
Female=base		.385***
		(.011)
Male	-0.216***	.306***
	(0.036)	(.007)
Family members	0.024***	.008***
	(0.009)	(.003)
age	-0.068***	-.022***
	(0.006)	

(contd. Table XXVIII)

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[23]It was not possible to explore this further in the paper. Our guess is that the variable (mothers' education) is reflecting a household's socio-economic position. The literature does report that people from better off backgrounds remain unemployed longer as they can wait for a more suitable job compared to those from less well-off backgrounds (for example, see Fields 1980, Dhanani 2004).

Variable	Reg. Coefficient	Marginal effects
City=base		.349***
		(.015)
Metro	-0.089*	.317***
	(0.048)	(.008)
Town	-0.221***	.271***
	(0.068)	(.018)
Village	0.252***	.446***
	(0.069)	(.022)
Unmarried=base		.369***
		(.008)
Married (male)	-0.327***	.255***
	(0.041)	(.011)
Base=NGO school		.570***
		(.095)
Private high school	-0.672***	.309***
	(0.246)	(.010)
Public high school	-0.606**	.333***
	(0.246)	(.010)
Quasi govt high school	-0.556**	.351***
	(0.246)	(.013)
Base=<BDT9,000		
Family inc (9-11K)	0.100	.520***
	(0.076)	(.024)
Family inc (11-20K)	-0.116*	.435***
	(0.064)	(.016)
Family inc (20-30K)	-0.213***	.397***
	(0.064)	(.015)
Family inc (30-50K)	-0.541***	.278***
	(0.065)	(.013)
Family inc (50-100)	-0.814***	.194***
	(0.072)	(.013)
Family inc (>100K)	-0.955***	.158***
	(0.085)	(.015)
	(0.306)	
Obs.	6,433	
Pseudo R^2	0.109	

Note: Figures in brackets are standard errors. Full model is reported in annex.

The coefficients of two other choice variables are of interest: marriage (of males) and type of school (private, public, NGO) that is attended. Thus, those who are married have a lower likelihood of being unemployed (25.5 per cent compared to singles (almost 37 per cent, see Table below).

In the case of school type, private schools do better while NGOs perform the poorest – here we should note that the NGO sample obtained was small. Private high school graduates (HSC) are likely to have an unemployment rate of 31 per

cent compared to 33 per cent for government and 35 per cent for quasi-government schools. The figure for NGO schools is 57 per cent.

Another important policy variable, in addition to education, is school performance (grades), which could affect NEET. Grades obtained in high school (HSC) and BA were examined to check how useful grades are in this context. The probit regressions (Annex Table A.5) and the estimated margins (Annex Table A.1) do not suggest that grades are very effective in obtaining employment – the relationship appears weak. This means that grades are not considered a good reflection of ability or that other variables like family influence are much more important.

Unemployment Duration and Salary Levels: Effect of Education and Grades

Unemployment Duration

In addition to employment status, it is also important to look at other dimensions of the labour market, namely the duration of unemployment as well as remuneration or salary levels of those who succeeded in obtaining employment. In particular, it would be interesting to see what effect education and grades have on these two variables. This is examined with reference to three levels of education: higher secondary or HSC, Bachelors or BA/equivalent, and Masters or MA/equivalent. The impact of grade levels was tested for HSC and BA degree holders (or equivalent).

BA-level achievers perform relatively better than others in terms of duration of unemployment. The coefficient of BA is positive and significant at 5% level. The marginal effect is 33.4 per cent, which is the likelihood that a BA holder has opportunity of getting employment within 6 months. For HSC, this is 32 per cent and for MAs, it drops to 21 per cent (Annex Table A.1). We also tested for the overall effect of "education" and found that this was also significant. The test result obtained was as follows:

$chi^2(9) =$ 70.40

$Prob > chi^2 =$ 0.0000

The next step is to explore what effect grades have on duration of unemployment. We do find some effect of BA grades with GPA levels above 3.0. However, the regression coefficient is significant only at 10 per cent level (Annex Table 4). The margins estimate also suggest that the likelihood of obtaining employment quickly is higher for those with better grades (14 per cent for GPA 2.5-3 and 26-28 per cent for GPA 3-3.5 and 3.5-4).

In terms of HSC results, we also find a positive effect of grades on unemployment duration. In other words, those with higher grades tend to have a

better probability in getting a job quickly, and conversely, those with poor grades tend to have to wait much longer. We reproduce below the relevant marginal effects from Annex Table A.1, for ease of reference. Thus, for someone with a GPA of less than 3, there is only a 15 per cent likelihood of getting a job in six months and 29 per cent chance of getting a job in 24 months or more. The picture is reversed for higher grade holders: a 23 per cent likelihood of getting a job within six months for GPA 3-4, which almost doubles to 44 per cent for GPA 5.

TABLE XXIX
**MARGINS FROM THE PROBIT REGRESSION,
UNEMPLOYMENT DURATION AND GRADES (HSC)**

HSC grades (GPA)	Unemployment duration 6 months	Unemployment duration >24 months
<3	.149**	.294**
	(.034)	(.040)
3-4	.273**	.269**
	(.018)	(.018)
4-5	.232**	.231**
	(.014)	(.015)
5	.440**	.194**
	(.029)	(.024)

Note: See annex Table A.1. ** Significant at 5% level. Figures in brackets are standard errors.

A couple of other variables of interest are gender and family income as having a potential effect upon unemployment duration. For gender, there is a small advantage seen for females compared to males (28 per cent vs 27 per cent). The family income effect, however, is quite pronounced, so we are reproducing the relevant margins results below. We may note the sharp increase in likelihood of being in the low unemployment duration bracket with increases in family income, from a low of 19 per cent to a high of 43 per cent as income increases from less than BDT 9,000 to more than BDT 100,000.

TABLE XXX
**EFFECT OF FAMILY INCOME/MONTH ON UNEMPLOYMENT
DURATION OF SIX MONTHS OR LESS**

Income group	Margins	SE	z
less than 9,000	.1908537**	.0227278	8.40
9,000-11,000	.1400504**	.0225278	6.22
11,000-20,000	.2770733**	.0218177	12.70
20,000-30,000	.2866232**	.0212772	13.47
30,000-50,000	.3302055**	.0251261	13.14
50,000-100,000	.4142031**	.0357305	11.59
More than 100,000	.4275624**	.0481796	8.87

Note: All margin estimates are significant at 5%.

Salary Levels (Education and Grades)

The regression results indicate a strong association between education and salary levels, with higher education closely related to higher salary.[24] Full details of the probit regression models are given in Annex Tables A.2 and A.3 and margins are reported in Annex Table A.1.

For the higher salary range (BDT 30,000-40000), we note the importance of educational status. While this is significant at each level of education, the probability of obtaining that level of salary is highest for MA (16.6 per cent), followed by BA (12.7 per cent) and the least for HSC (3.3 per cent).

The probit regressions for salary against grades and other control variables show that HSC and BA grades are not in fact useful in predicting higher salary levels (Annex Table A.3). The regression coefficients for both HSC and BA grades are generally not significant, and, in one case, were of the wrong sign. We may also note that there was no effect of gender found, while there was significant effects of age, location and family income on salaries.

Limitations

The main criticism that could be levelled against the study is the sampling methodology used and the resultant implications for representativeness of findings derived. Since it is based on an online survey, the population that the sample was obtained from is potentially very large. The survey was advertised bearing in mind the target groups, to over 600,000 Facebook users out of which some 2.5 per cent actually responded. This response is probably acceptable for the survey of this kind, and at any rate, what is more important is the absolute size of the sample – over 15,000 – which would seem to be adequate. Thus, the main concern is not with response rate or sample size but with the question of self-selection. This is difficult to address in an online survey without a clear sample frame and the ability to draw a random sample.

Nevertheless, it is argued here that under the circumstances, the best way to check for validity is to assess if the findings of the survey are able to reasonably approximate those obtained from more orthodox approaches, and generally appears sensible. In this respect, the present study would appear to do very well, as its broad findings closely match those available from the extant literature, e.g., relating to both Bangladesh and India. There is, therefore, a strong *prima facie* case

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[24]While this may seem obvious, it does serve to provide additional validity to the data by confirming what we already know.

that the methodology adopted worked well and could be employed in the future for similar exercises.

Future studies attempting to replicate this work would do well to bear in mind two further limitations, which should be remedied. Firstly, it would be good to include specific subjects studied by graduates and post-graduates, rather than simply broad disciplines (like arts, humanities). This would enable us to examine what subjects are better suited to employment generation. Secondly, it would also be useful to specify salary or earnings as a continuous variable rather than a range, which would then allow researchers to undertake estimation of earnings functions.[25]

VII. DISCUSSION

This exploratory exercise was aimed, first, at identifying the potential for carrying out online socio-economic surveys, taking the question of "educated unemployment" as a test case. The topic is of great interest not just in Bangladesh but also throughout South Asia and beyond. Most studies depend either on own data generation, on national level surveys like Labour Force Surveys carried out by national statistical agencies (e.g., BBS in Bangladesh), or data from other large surveys like the National Sample Surveys (NSS) in India. Clearly, these studies are few and critically dependent on the availability of data, preferably at the national level. Those based on smaller samples are often not representative of the country but frequently set up with a specific question in mind, e.g., assessing unemployment amongst particular groups, categories or sub-groups of graduates.

Given the paucity of data, it would undoubtedly be a boon if credible data could be generated online for a wider population that could cover, for example, a large share of the educated youth population of the country. This would save time and money, could be repeated more frequently, and generally be of immense interest to researchers and policymakers. The key question of course is whether the data are credible.

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[25]Salary ranges were specified rather than salary levels, in order to avoid potential sensitivity especially where people are new to online surveys. Further, selecting a range was thought to be easier for smartphone users. Nevertheless, future research should certainly attempt to revisit this, as suggested (authors are thankful to the anonymous referee for pointing this out).

Why do we think the online data quality is credible?

It was possible to generate a large data set that one usually associates with national level sample surveys like the Household Income Expenditure Surveys (HIES) in Bangladesh or the NSS in India. There are several ways in which the data could be validated. One could repeat the online survey a second time and check for comparability. If similar results are obtained in the second round, our confidence in the data should be boosted. It could still be questioned whether the data represents only the online population or whether it represents the entire target population. The other question would be, with regard to the selection bias of the respondents.

As was noted earlier, the share of the total online population to the total population is considerable. Thus, even if we were to concede that the data was only representative of the online population, this would still represent almost half of the total population of interest.

One could also argue that validation could be approached through a comparison of our findings with findings derived from traditional surveys. This would allow us to check for consistency of findings, and if these are found to match reasonably well, and, in general, produce sensible results and associations between variables, we could claim validation.

The approach that we have taken is the last, i.e., we compared our findings with those reported in the recent literature and found that our results were reasonable and defensible. Subsequent analysis with the data shows that the findings appear very reasonable and comparable with findings in the literature. The effect of "control" variables like gender, family size, age and family income were as expected. In particular, family income (reflecting family influence) emerged as a powerful predictor.

Broad Findings and Implications

Although the findings are generally in the direction of our expectations, explanations offered require nuanced discussion, e.g., SSC/HSC holders contribute relatively more to full-time employment but it is the BA, and especially the MA holders who are concentrated at the top paying jobs. Similarly, while the probability of a post-graduate student in getting a job is lower, say than a BA, his chances of being paid a much higher salary are far better.

A group that has not been taken up for study in this paper is "those in study and training and looking for a job." This group is numerically large, and will soon enter the labour force. We need to understand this group better in terms of their

background, aspirations and the nature of their periodic engagement in the labour market as an aid to future policy. A second round of surveys could address these issues.

The headline numbers describing the employment status of educated youth (at least SSC pass, and aged between 18 and 35 years) were easily obtained from the data. Full-time employment was found to be around 48 per cent and part-time employment was 18 per cent. NEET was found to be around 33 per cent while a predominance of salary-based work was found over 55 per cent. On the other hand, self-employment was found to be low for this group (just over 11 per cent).

The spatial distribution was much as expected. Unemployment was much higher in villages compared to urban areas. The gender difference is also noteworthy with 38 per cent female unemployment as against 30 per cent male unemployment.

In general, the education level appears to be inversely associated with NEET as this is significantly higher for BA and MA holders compared to HSC or SSC. This is true for South Asia generally, as better qualified candidates will wait (or are able to wait) for a (better paying) job (see Mehrotra and Parida 2020, Jeffery 2009).

Grades were found to have an effect on NEET in the expected direction but the effect was weak, especially for BA grades. Similarly, for unemployment duration, the association of grades was subdued although its association with education level, particularly MA holders, was strong. In the case of salary levels, education performed well but grades did not. These results suggest that for unemployment duration and salary levels, family socio-economic influence (e.g. proxied by family income, parents' education, land owned) may be more important determinants, with other factors taking a back seat.

This exploratory paper has been successful in validating and deepening our understanding of educated youth unemployment in Bangladesh and is a useful contribution to the scant Bangladesh literature on the subject. The methodology used is of major significance and appears credible. It provides highly plausible results which ultimately will have to be tested against findings from a large-scale, traditional survey that hopefully will be conducted in the near future.

The issue of educated youth unemployment is of particular concern in the context of rapid growth and rising aspirations on the one hand, and increasing access to education, on the other. These trends, however, have not gone hand in hand with acquisition of skills, increasing specialisation or improving the quality of basic education, leaving a growing number of school leavers inadequately

prepared for the labour market. Thus, tertiary education, in particular, has aggravated the problem of unemployment creating an underclass of discontent in the economy in the face of rapid growth and expansion. It is, therefore, crucial that policymakers pay greater attention to quality of education and creation of a skilled, well-motivated work force in order to benefit from growth. This, however, is only half the story. The other half relates to a culture of patronage and *'tadbir'*[26] that is used to bypass the formal system of employment and sabotage the emergence of an effective, merit-based labour market. This is thought to be pervasive, especially in the public sector which is a large employer of educated youth. There is little work on this aspect of the labour market, and must, for the moment, be left to future research.

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[26]Broadly meaning seeking patronage or intercession by appeals and invocation, as needed, frequently using social or political capital.

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Annex

Table A.1: **Educational Returns (Salary-wise)**

Salary: Low	Delta-method					
	Margin	td.Err.	z	P>z	95% Conf.	Interval]
hsc_result						
First Division	0.283	0.046	6.130	0.000	0.192	0.373
GPA 3 - 3.99	0.297	0.016	18.750	0.000	0.266	0.328
GPA 4 - 4.99	0.234	0.012	19.190	0.000	0.210	0.258
GPA 5.00	0.154	0.017	9.110	0.000	0.121	0.187
Less than GPA 3	0.361	0.031	11.500	0.000	0.299	0.422
Second Division	0.359	0.056	6.460	0.000	0.250	0.468
Salary: High	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
hsc_result						
First Division	0.053	0.026	2.080	0.037	0.003	0.104
GPA 3 - 3.99	0.058	0.008	7.630	0.000	0.043	0.073
GPA 4 - 4.99	0.051	0.006	7.860	0.000	0.038	0.064
GPA 5.00	0.026	0.007	3.670	0.000	0.012	0.040
Less than GPA 3	0.076	0.017	4.430	0.000	0.042	0.110
Second Division	0.063	0.034	1.860	0.064	-0.004	0.130
Third Division	0.191	0.118	1.620	0.106	-0.040	0.422
	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
ba_result						
CGPA 2.5 - 3	0.349	0.076	4.570	0.000	0.199	0.499
CGPA 3 - 3.5	0.310	0.019	16.150	0.000	0.273	0.348
CGPA 3.5 - 4	0.245	0.010	23.640	0.000	0.224	0.265
CGPA Less than 2.5	0.203	0.017	11.940	0.000	0.169	0.236
Salary: High	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
ba_result						
CGPA 2.5 - 3	0.021	0.025	0.840	0.403	-0.028	0.069
CGPA 3 - 3.5	0.073	0.010	7.120	0.000	0.053	0.093
CGPA 3.5 - 4	0.048	0.006	8.360	0.000	0.037	0.060
CGPA Less than 2.5	0.026	0.006	4.560	0.000	0.015	0.037
Salary: Low	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
n_highest_ed1						
HSC	0.440	0.037	12.010	0.000	0.368	0.511
BA	0.271	0.013	20.580	0.000	0.245	0.296
MA	0.215	0.011	19.500	0.000	0.193	0.237
Salary: High (BDT30-40K/month)	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
HSC	0.033	0.010	3.07	0.000	0.035	0.094
BA	0.127	0.010	12.78	0.000	0.050	0.081
MA	0.166	0.166	16.64	0.000	0.027	0.049
Unemployment Duration: Low	Margin	Std.Err.	z	P>z	95%Conf.	Interval]

(Contd. Table A.1)

Salary: Low	Delta-method					
	Margin	td.Err.	z	P>z	95% Conf.	Interval]
hsc_result						
First Division	0.398	0.076	5.240	0.000	0.249	0.546
GPA 3 - 3.99	0.273	0.018	15.150	0.000	0.238	0.308
GPA 4 - 4.99	0.232	0.014	16.390	0.000	0.204	0.260
GPA 5.00	0.440	0.029	15.280	0.000	0.383	0.496
Less than GPA 3	0.149	0.034	4.400	0.000	0.083	0.215
Second Division	0.232	0.071	3.250	0.001	0.092	0.372
Third Division	0.327	0.207	1.580	0.114	-0.078	0.733
Unemployment Duration: High	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
hsc_result						
First Division	0.071	0.032	2.240	0.025	0.009	0.134
GPA 3 - 3.99	0.269	0.018	14.730	0.000	0.233	0.304
GPA 4 - 4.99	0.231	0.015	15.860	0.000	0.202	0.259
GPA 5.00	0.194	0.024	8.230	0.000	0.148	0.240
Less than GPA 3	0.294	0.040	7.380	0.000	0.216	0.372
Second Division	0.419	0.084	4.980	0.000	0.254	0.584
Third Division	0.532	0.186	2.860	0.004	0.167	0.897
Unemployment Duration: Low	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
ba_result						
CGPA 2.5 - 3	0.138	0.060	2.300	0.022	0.020	0.255
CGPA 3 - 3.5	0.258	0.018	14.680	0.000	0.224	0.293
CGPA 3.5 - 4	0.281	0.014	20.230	0.000	0.254	0.308
CGPA Less than 2.5	0.286	0.027	10.560	0.000	0.233	0.339
Unemployment Duration: High	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
ba_result						
CGPA 2.5 - 3	0.436	0.116	3.770	0.000	0.209	0.662
CGPA 3 - 3.5	0.256	0.018	13.990	0.000	0.220	0.292
CGPA 3.5 - 4	0.222	0.013	16.700	0.000	0.196	0.249
CGPA Less than 2.5	0.262	0.028	9.280	0.000	0.207	0.317
Unemployment Duration: Low	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
n_highest_ed1						
HSC	0.316	0.044	7.250	0.000	0.231	0.402
BA	0.334	0.016	21.110	0.000	0.303	0.365
MA	0.207	0.015	14.270	0.000	0.179	0.236
Unemployment Duration: High	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
n_highest_ed1						
HSC	0.158	0.032	4.990	0.000	0.096	0.220
BA	0.189	0.013	14.310	0.000	0.163	0.215
MA	0.309	0.017	18.030	0.000	0.276	0.343
NEET	Margin	Std.Err.	z	P>z	95%Conf.	Interval]

(Contd. Table A.1)

Salary: Low	Delta-method					
	Margin	td.Err.	z	P>z	95% Conf.	Interval]
hsc_result						
First Division	0.366	0.040	9.090	0.000	0.287	0.445
GPA 3 - 3.99	0.356	0.012	29.280	0.000	0.332	0.380
GPA 4 - 4.99	0.327	0.009	34.460	0.000	0.308	0.345
GPA 5.00	0.294	0.015	19.440	0.000	0.264	0.324
Less than GPA 3	0.312	0.023	13.760	0.000	0.268	0.357
Second Division	0.414	0.045	9.130	0.000	0.325	0.503
Third Division	0.281	0.105	2.680	0.007	0.076	0.486
NEET	Margin	Std.Err.	z	P>z	95%Conf.	Interval]
ba_result						
CGPA 2.5 - 3	0.391	0.061	6.440	0.000	0.272	0.510
CGPA 3 - 3.5	0.374	0.014	27.540	0.000	0.348	0.401
CGPA 3.5 - 4	0.328	0.008	39.660	0.000	0.312	0.345
CGPA Less than 2.5	0.277	0.014	19.790	0.000	0.249	0.304
NEET	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
n_highest_ed1						
HSC	0.191	0.019	10.070	0.000	0.154	0.229
BA	0.309	0.010	32.290	0.000	0.290	0.327
MA	0.378	0.010	37.070	0.000	0.358	0.398

Table A.2: **Probit Regression Results for All Dependent Variables**

Explanatory variables	Dependent Variables are Dummies				
	Unemp duration (Low <6 months=1)	Unemp duration (High >24 months=1)	Salary (Low<10k = 1)	Salary (High>40k = 1)	NEET Dummy (Unemp=1)
2bn.n_highest~1(HSC)					
3.n_highest_ed1(BA)	0.050	0.103	0.008	0.450***	0.373***
	(0.127)	(0.139)	(0.119)	(0.172)	(0.073)
4.n_highest_ed1(MA)	-0.336**	0.488***	-0.259*	0.531***	0.561***
	(0.135)	(0.140)	(0.133)	(0.171)	(0.077)
mothers_edu	0.095	0.075	-0.063*	0.125***	0.035**
	(0.071)	(0.076)	(0.035)	(0.026)	(0.017)
parents_ed	0.002	-0.036**			
	(0.014)	(0.016)			
1bn.gender					
2.gender	-0.004	-0.156**	-0.037	0.081	-0.216***
	(0.062)	(0.064)	(0.076)	(0.063)	(0.036)
familymembers	-0.034**	0.027*	0.063***	-0.037**	0.024***
	(0.017)	(0.017)	(0.016)	(0.015)	(0.009)
age	-0.059***	0.113***	-0.041***	0.071***	-0.068***
	(0.010)	(0.012)	(0.010)	(0.010)	(0.006)
1bn.current_l~n					
2.current_loc~n	0.241***	-0.085	-0.432***	-0.049	-0.089*
	(0.090)	(0.093)	(0.087)	(0.079)	(0.048)
3.current_loc~n	0.157	0.341***	-0.135	-0.273**	-0.221***
	(0.126)	(0.125)	(0.118)	(0.119)	(0.068)

(Contd. Table A.2)

Explanatory variables	Dependent Variables are Dummies				
	Unemp duration (Low <6 months=1)	Unemp duration (High >24 months=1)	Salary (Low<10k = 1)	Salary (High>40k = 1)	NEET Dummy (Unemp=1)
4.current_loc~n	-0.053	0.219*	-0.230*	-0.854***	0.252***
	(0.121)	(0.115)	(0.137)	(0.205)	(0.069)
1bn.marital_st1					
2.marital_st1			0.389	1.085***	0.272
			(0.542)	(0.372)	(0.299)
3.marital_st1	0.748			0.142	0.395
	(0.546)			(0.461)	(0.331)
4.marital_st1	0.084	0.040	-0.310***	0.409***	-0.327***
	(0.079)	(0.078)	(0.076)	(0.063)	(0.041)
1bn.ints_type~e					
2.ints_type_c~e	0.029	-0.196	0.030	0.056	-0.672***
	(0.354)	(0.375)	(0.090)	(0.076)	(0.246)
3.ints_type_c~e	-0.101	-0.086	-0.133	-0.124	-0.606**
	(0.353)	(0.375)	(0.094)	(0.076)	(0.246)
4.ints_type_c~e	0.135	-0.338			-0.556**
	(0.354)	(0.375)			(0.246)
1bn.familyinc~h					
2.familyinc_m~h	-0.219*	-0.146	-0.289**	0.329*	0.100
	(0.128)	(0.115)	(0.146)	(0.199)	(0.076)
3.familyinc_m~h	0.239**	-0.245**	-0.321***	-0.141	-0.116*
	(0.107)	(0.102)	(0.112)	(0.181)	(0.064)
4.familyinc_m~h	0.217**	-0.127	-0.608***	-0.071	-0.213***
	(0.110)	(0.109)	(0.112)	(0.162)	(0.064)
5.familyinc_m~h	0.314***	-0.336***	-0.841***	0.418***	-0.541***
	(0.119)	(0.119)	(0.112)	(0.142)	(0.065)
6.familyinc_m~h	0.515***	-0.645***	-1.547***	1.209***	-0.814***
	(0.134)	(0.147)	(0.165)	(0.141)	(0.072)
7.familyinc_m~h	0.561***	-0.697***	-1.015***	1.563***	-0.955***
	(0.163)	(0.199)	(0.150)	(0.148)	(0.085)
_cons	0.522	-3.624***	1.010***	-4.253***	1.937***
	(0.502)	(0.528)	(0.357)	(0.412)	(0.306)
Obs.	2257	2250	3400	3406	6433
Pseudo R^2	0.094	0.153	0.196	0.270	0.109

Table A.3: **Regression Results (Salary and Grades)**

	(1)	(7)	(2)	(5)
	salary_dum (Low)	salary_dum (High)	salary_dum (Low)	salary_dum (High)
1bn.hsc_result				
2.hsc_result	0.042	0.042		
	(0.144)	(0.241)		
3.hsc_result	-0.152	-0.024		
	(0.142)	(0.234)		
4.hsc_result	-0.444***	-0.330		
	(0.157)	(0.254)		
5.hsc_result	0.219	0.180		
	(0.159)	(0.259)		
6.hsc_result	0.215	0.085		
	(0.199)	(0.364)		
7.hsc_result		0.737		
		(0.488)		
mothers_edu	-0.022	-0.053	-0.032	-0.054
	(0.025)	(0.035)	(0.025)	(0.036)
1bn.gender				
2.gender	-0.069	-0.038	-0.099*	-0.020
	(0.055)	(0.076)	(0.056)	(0.079)
familymembers	0.017	0.061***	0.020	0.077***
	(0.013)	(0.016)	(0.014)	(0.016)
age	-0.048***	-0.062***	-0.029***	-0.053***
	(0.008)	(0.009)	(0.007)	(0.010)
1bn.current_l~n				
2.current_loc~n	0.178**	-0.439***	0.152**	-0.357***
	(0.074)	(0.087)	(0.076)	(0.090)
3.current_loc~n	0.162	-0.153	0.198*	-0.123
	(0.099)	(0.119)	(0.101)	(0.127)
4.current_loc~n	0.387***	-0.264*	0.436***	-0.154
	(0.112)	(0.137)	(0.116)	(0.144)
1bn.marital_st1				
2.marital_st1		0.257		0.500
		(0.436)		(0.516)
3.marital_st1	0.799*		0.924*	
	(0.472)		(0.480)	
4.marital_st1	-0.267***	-0.331***	-0.224***	-0.305***
	(0.057)	(0.075)	(0.058)	(0.078)
1bn.ints_type~e				
2.ints_type_c~e	0.492	0.052	0.408	0.064
	(0.486)	(0.089)	(0.484)	(0.094)
3.ints_type_c~e	0.566	-0.121	0.547	-0.107
	(0.488)	(0.091)	(0.485)	(0.094)
4.ints_type_c~e	0.479		0.427	
	(0.488)		(0.486)	
1bn.familyinc~h				
2.familyinc_m~h	0.242*	-0.280*	0.235*	-0.211
	(0.133)	(0.149)	(0.137)	(0.156)
3.familyinc_m~h	0.654***	-0.337***	0.648***	-0.249**
	(0.104)	(0.112)	(0.110)	(0.120)

(Contd. Table A.3)

	(1)	(7)	(2)	(5)
	salary_dum (Low)	salary_dum (High)	salary_dum (Low)	salary_dum (High)
4.familyinc_m~h	0.230**	-0.600***	0.174*	-0.456***
	(0.100)	(0.113)	(0.105)	(0.119)
5.familyinc_m~h	-0.202**	-0.824***	-0.241**	-0.737***
	(0.096)	(0.112)	(0.100)	(0.119)
6.familyinc_m~h	-0.502***	-1.492***	-0.561***	-1.412***
	(0.104)	(0.164)	(0.108)	(0.170)
7.familyinc_m~h	-0.705***	-0.967***	-0.785***	-0.909***
	(0.122)	(0.151)	(0.126)	(0.154)
1bn.ba_result				
2.ba_result			-0.107	0.585
			(0.213)	(0.500)
3.ba_result			-0.304	0.381
			(0.209)	(0.498)
4.ba_result			-0.445**	0.090
			(0.215)	(0.506)
_cons	0.275	1.447***	0.129	0.637
	(0.581)	(0.421)	(0.605)	(0.615)
Obs.	3402	3400	3286	3280
Pseudo R^2	0.147	0.196	0.142	0.188

Table A.4: **Regression Results (Unemployment duration and grades)**

	(1)	(2)	(4)	(5)
	undur_dum 1	undur_dum4	undur_dum1	undur_dum4
1bn.ba_result				
2.ba_result	0.442	-0.494*		
	(0.277)	(0.299)		
3.ba_result	0.511*	-0.602**		
	(0.275)	(0.297)		
4.ba_result	0.525*	-0.475		
	(0.284)	(0.307)		
mothers_edu	0.113***	-0.094***	0.108***	-0.095***
	(0.030)	(0.032)	(0.029)	(0.031)
1bn.gender				
2.gender	0.025	-0.186***	0.013	-0.184***
	(0.064)	(0.065)	(0.063)	(0.063)
familymembers	-0.044**	0.036**	-0.040**	0.031*
	(0.017)	(0.017)	(0.017)	(0.016)
age	-0.085***	0.147***	-0.065***	0.125***
	(0.011)	(0.012)	(0.011)	(0.012)
1bn.current_l~n				
2.current_loc~n	0.241***	-0.042	0.212**	-0.054
	(0.091)	(0.094)	(0.090)	(0.094)
3.current_loc~n	0.149	0.372***	0.127	0.346***
	(0.129)	(0.128)	(0.126)	(0.124)
4.current_loc~n	-0.068	0.201*	0.010	0.153
	(0.120)	(0.115)	(0.117)	(0.112)

(Contd. Table A.4)

	(1)	(2)	(4)	(5)
	undur_dum 1	undur_dum4	undur_dum1	undur_dum4
1bn.marital_st1				
2.marital_st1				
3.marital_st1	0.674		0.380	
	(0.461)		(0.505)	
4.marital_st1	0.016	0.012	0.075	0.057
	(0.083)	(0.080)	(0.080)	(0.078)
1bn.ints_type~e				
2.ints_type_c~e	-0.072	-0.412	-0.130	-0.276
	(0.331)	(0.368)	(0.316)	(0.349)
3.ints_type_c~e	-0.207	-0.287	-0.245	-0.161
	(0.332)	(0.368)	(0.316)	(0.348)
4.ints_type_c~e	-0.042	-0.475	-0.030	-0.382
	(0.331)	(0.368)	(0.316)	(0.349)
1bn.familyinc~h				
2.familyinc_m~h	-0.221*	-0.121	-0.192	-0.188*
	(0.131)	(0.118)	(0.126)	(0.114)
3.familyinc_m~h	0.173	-0.208**	0.280***	-0.238**
	(0.108)	(0.104)	(0.106)	(0.101)
4.familyinc_m~h	0.186*	-0.086	0.199*	-0.055
	(0.112)	(0.111)	(0.111)	(0.108)
5.familyinc_m~h	0.287**	-0.343***	0.309***	-0.285**
	(0.116)	(0.121)	(0.116)	(0.117)
6.familyinc_m~h	0.499***	-0.622***	0.494***	-0.625***
	(0.136)	(0.155)	(0.135)	(0.152)
7.familyinc_m~h	0.565***	-0.754***	0.587***	-0.635***
	(0.164)	(0.201)	(0.158)	(0.193)
1bn.hsc_result				
2.hsc_result			-0.344*	0.848***
			(0.203)	(0.238)
3.hsc_result			-0.472**	0.729***
			(0.203)	(0.238)
4.hsc_result			0.108	0.602**
			(0.213)	(0.253)
5.hsc_result			-0.783***	0.924***
			(0.243)	(0.255)
6.hsc_result			-0.473	1.261***
			(0.304)	(0.315)
7.hsc_result			-0.188	1.546***
			(0.606)	(0.525)
_cons	0.871*	-3.296***	1.188**	-4.192***
	(0.528)	(0.580)	(0.491)	(0.555)
Obs.	2168	2161	2257	2250
Pseudo R^2	0.090	0.154	0.106	0.148

Table A.5: **Regression Results (NEET and Grades)**

	(8)	(9)
	NEET	NEET
1bn.hsc_result		
2.hsc_result	-0.027	
	(0.112)	
3.hsc_result	-0.106	
	(0.111)	
4.hsc_result	-0.199*	
	(0.117)	
5.hsc_result	-0.147	
	(0.124)	
6.hsc_result	0.126	
	(0.157)	
7.hsc_result	-0.238	
	(0.327)	
mothers_edu	0.039**	0.035**
	(0.017)	(0.017)
1bn.gender		
2.gender	-0.229***	-0.248***
	(0.036)	(0.037)
familymembers	0.023**	0.022**
	(0.009)	(0.009)
age	-0.060***	-0.058***
	(0.005)	(0.005)
1bn.current_l~n		
2.current_loc~n	-0.091*	-0.118**
	(0.048)	(0.049)
3.current_loc~n	-0.244***	-0.258***
	(0.068)	(0.071)
4.current_loc~n	0.196***	0.191***
	(0.068)	(0.071)
1bn.marital_st1		
2.marital_st1	0.174	0.251
	(0.296)	(0.300)
3.marital_st1	0.403	0.497
	(0.328)	(0.339)
4.marital_st1	-0.319***	-0.299***
	(0.041)	(0.042)
1bn.ints_type~e		
2.ints_type_c~e	-0.718***	-0.684***
	(0.244)	(0.250)
3.ints_type_c~e	-0.671***	-0.622**
	(0.244)	(0.250)
4.ints_type_c~e	-0.571**	-0.535**
	(0.244)	(0.251)
1bn.familyinc~h		
2.familyinc_m~h	0.084	0.051
	(0.077)	(0.080)
3.familyinc_m~h	-0.096	-0.117*
	(0.064)	(0.066)
4.familyinc_m~h	-0.175***	-0.160**
	(0.064)	(0.066)
5.familyinc_m~h	-0.507***	-0.517***
	(0.065)	(0.067)

(Contd. Table A.5)

	(8)	(9)
	NEET	NEET
6.familyinc_m~h	-0.763***	-0.772***
	(0.072)	(0.073)
7.familyinc_m~h	-0.893***	-0.927***
	(0.085)	(0.086)
1bn.ba_result		
2.ba_result		-0.044
		(0.162)
3.ba_result		-0.168
		(0.160)
4.ba_result		-0.317*
		(0.164)
_cons	2.228***	2.248***
	(0.319)	(0.347)
Obs.	6433	6168
Pseudo R^2	0.103	0.109