Hidden Unemployment Among University Graduates in Bangladesh: Evidence from a Time-Use Perspective

Author: Apurba Barua

Email: zeporapurba@gmail.com

Orcid Id: https://orcid.org/0009-0000-1758-9593

Abstract

Although the tertiary sector of Bangladesh education is growing fast, there is a serious crisis of graduate employment systematically undervalued by official labor force data. Typical surveys treat graduates who are involved in rigorous, unpaid preparation to take civil service and banking exams as economically inactive, hiding a large reservoir of labor market slack. This research fills this gap in measurement by taking a time-use approach to operationalize and quantify hidden unemployment. Based on a representative sample 3,361 graduates aged 22-35, based on the 2022 Household Income and Expenditure (HIES), the status of the graduate labor market is reclassified into four mutually exclusive categories. A Multinomial Logit (MLOGIT) model is used to estimate the determinants, which is checked by a binary Logit robustness test. The descriptive results indicate undetected unemployment rate of 6.94%, which increases the underutilization of graduates to 20.84%. Average Marginal Effects are evidence of a luxury of waiting effect: tertiary-educated parents of graduates are about 13 percentage points more likely to suffer hidden unemployment. A harsh gender penalty is noted. The paper offers the first empirical quantification of hidden unemployment with time-use data in Bangladesh and suggests reform in the measurement of the labor force.

Keywords: hidden unemployment; graduate employment; time-use; labor market slack; multinomial logit; Bangladesh

JEL Classification: J21, J24, J46, C35, O53

1. Introduction

1.1 Background and Problem Statement

Tertiary enrolments in Bangladesh have increased threefold to above 4.5 million in 2018 compared to 2.5 million in 2010 due to economic growth and the status attached to higher qualifications in the society. But this impressive educational growth has not been accompanied by a corresponding rise in formal job opportunities, creating one of the worst graduate job crises in South Asia. As the number of degrees is being granted at an unprecedented rate, the avenue to a secure job after college is becoming longer and riskier.

The main challenge is in measuring this crisis. According to official figures provided by the Bangladesh Bureau of Statistics (BBS), there is a reported graduate unemployment rate of 46% which is based on strict categories of labor force that count only those who are actively seeking employment in accordance with International Labour Organization (ILO) formalized standards. This framework establishes a sizeable measurement blind spot. Competition over the positions in the Bangladesh Civil Service (BCS) and state-owned banking sector, in Bangladesh, has forced several graduates to enter competitive coaching centers where they spend 20-40 hours per week training to take competitive tests. The standard surveys also categorize such people as economically inactive and not unemployed even though they are fully occupied with job-seeking activities. The government statistics thus covers the reality of the magnitude of graduate labor underutilization, leading to faulty policy and resource misappropriation.

This paper fills this measurement gap by taking a time-use approach to operationalize and empirically measure the hidden unemployment among the new university graduates in Bangladesh. Using the specific activity reason parameters of the 2022 Household Income and Expenditure Survey (HIES), the analysis recharacterizes graduate labor market status outside the duality of employed/inactive, which presents a much more disturbing image of the graduate labor market than official data would indicate.

1.2 Operational Definition of Hidden Unemployment

The concept of hidden unemployment in this research is rigorously defined as a quantifiable condition of labor market, rather than a conceptual or theoretical category. In particular, it means graduates who according to common definitions of the labor force are formally defined as economically inactive, but whose time-use is devoted mainly to examination preparation, coaching, or institutional training with the express aim of taking formal jobs. The quantitative rules for an individual to be coded as a hidden unemployed are: (1) the individual reports zero hours of formal paid work, zero hours of active job search during the seven-day reference period, making him or her officially inactive; (2) the main reason why the individual is not working is coded in the BBS as: in educational institutions/training (Reason Code 6) or to start studying (Reason Code 8). This operationalization is narrowly separated out of traditional underemployment and skill mismatch and only deals with the unaccounted labor market slack that arises throughout the school-to-work transition.

1.3 Research Questions and Significance

This paper is informed by three research questions: (1) Which is the actual scale of graduate job underutilization in Bangladesh with consideration of hidden unemployment into the

mainstream measures? (2) What is the socio-demographic predictors to hidden unemployment among recent graduates? (3) Is the likelihood of hidden unemployment systematically differentiated by gender, parental education, field of study and household wealth?

These questions are not only of academic interest but are also of great importance in addressing them. Graduate employment has always been a priority issue in Bangladesh, with policies on Skills Development and subsequent Five-Year Plans highlighting it as a core concern. However, until the extent of underutilization of graduate labor has been measured correctly, the policy responses will be tuned to an imperfect image. Offering the initial econometric estimation of the hidden unemployment based on the time-use data in the Bangladesh setting, the given study will enable the policymakers to have a solid base of evidence to create specific, efficient interventions. The results also have implications on the way national statistical agencies in developing economies measure and report labor market conditions.

2. Literature Review

2.1 Conceptual Foundations of Hidden Unemployment

A tripartite category of employed, unemployed and economically inactive is used in standard labor force models, be they ILO or national statistical agencies. This hard schema has been widely criticized to underestimate the slack in labor markets. Baum and Mitchell (2010) show that hidden unemployment is a serious upward bias in our understanding of labor market well-being especially when the vulnerability is stratified by demographic group. The inactive category in developing economies often includes those who are in fact in credentialing, or a type of intensive job-search behavior that is simply not visible to categorical surveys.

The school-to-work transition literature confirms that graduates seldom transition into the job market in a linear manner after their schooling. According to Schoon and Silbereisen (2009), an extended period of human capital signaling occurs when graduates acquire more education so that they can stand out in the existing pool of applicants. These transition gaps may be extended making people statistically invisible in the official unemployment statistics though they may spend most of their time on a daily basis in job-search related activities. Ozerkek and Sonmez (2021) also show that underemployment by time is the most sensitive to larger structural economic changes that are completely hidden in the inactive category of Labor Force Surveys- a discovery that has a direct implication on quickly growing economies.

2.2 Time-Use Approaches to Measuring Labor Market Slack

The perceived limitations of categorical labor surveys have led labor economists to adopt time-use survey techniques to enable them to comprehend real behavior and underutilization in the labor market. Time-use modules of national household surveys provide in-depth data on the time spent daily on activities, which can be analyzed, not through dichotomies like employed/unemployed.

Krueger and Mueller (2012) used time-diary data to conclude that the unemployed and economically idle use their time in institutionally and demographically different ways and that there exist substantial differences between the intensity of job-search in the institutional and demographic context. This finding has theoretical implications: it demonstrates that categorical labor force status is not an ideal proxy of the degree of labor market participation, and time-use data may allow uncovering the dimensions of labor underutilization that are not observable with the help of usual surveys. Going further with this argument, Hirway (2010) presents an elaborate methodological discussion of the application of time-use surveys in the measure of the labor

underutilization in the context of the developing countries, and shows that it is not a trivial percentage of those formally in an inactive state who respond to transition-relevant activities that constitute de facto job-seeking behaviors.

The ILO has formally adopted these limitations in its guidelines on measuring informality (ILO, 2013) which recommends that time-allocation data should be made available by national statistical institutions to complement the categorical measures of employment in the measurement of the full spectrum of underutilization of labor. This kind of recommendation has had a very strong impact especially in South Asia where there has been a pre-disposition of categorical surveys to misclassification by informality and transitivity of labor market activity. It is also demonstrated by Antonopoulos and Hirway (2010) that unpaid work and informal transitional activities like credentialing is an important source of unrecorded economic activity in the developing economies, the omission of which biases estimates of slack in the labor market in a systematic manner.

2.3 Graduate Unemployment Across South Asia

Graduate-credential-seeking as well as holding up employment is not exclusive to Bangladesh, but a systematically selected element of labour markets in South Asia, which is anchored on the price received in the public sector, and the signaling cost of performance in competitive examinations. It is possible to think about the case of Bangladesh in the context of this broader region.

In India, the Union Public Service Commission (UPSC) test, equivalent to the BCS in Bangladesh is administered to millions of applicants annually to a few thousand vacancies. A similar dynamic of the so-called luxury of waiting is described by Ghosh and Ray (2017) in India, in which students with socially privileged backgrounds are over-represented in cohorts that must

study years of final exam preparation, which is funded by their extended family networks. They find that the expected payoffs of getting a position in the civil service are large enough that rational graduates would be prepared to wait years of no pay, even considering the probability of not doing so. The similarities between the structures and Bangladesh are straight and astounding.

In Pakistan, an equivalent test, the Central Superior Services (CSS) test, generates a pool of graduates who are under full-time training. Khan (2019) cites it as a major source of labor market distortion in Pakistan, where the preparation activity is bulged in the urban coaching facilities, which are geographic agglomerations of unobservable unemployment not recorded in the official LFS data. The same tendency can be seen in Sri Lanka: Gunatilaka (2013) observes that in Sri Lanka, university graduates face far greater likelihood of job-waiting behavior than secondary school leavers, a tendency that can be attributed to the reservation wage effect, and prestige gap between the two types of employment. Taken together, this localized evidence confirms that graduate hidden unemployment is a structural effect across the entire South Asian region, and therefore develops better measurement tools (as proposed in the current study) is a policy priority in the region.

2.4 Graduate Unemployment in the Bangladesh Context

In Bangladesh, the crisis of graduate-level employment is exacerbated by the increase in tertiary enrolment that has greatly exceeded the creation of formal sector jobs. Although the moderate aggregate unemployment rates are reported by BBS official statistics, the level of youth unemployment, especially among graduates with tertiary education, is disproportionately high (Bidisha & Barman, 2022). The available sources on graduate unemployment in Bangladesh are mostly based on structural mismatches: Nath et al. (2025) cite surplus graduates, out-of-date

curricula, and institutional weaknesses as the main factors, and Miah (2022) and Rashid and Islam (2020) note the disconnection between academic education and the needs of the private sector.

The peculiar feature of Bangladesh is the strength of the culture of competitive credentialing that revolves around the BCS and state-owned banking exams. Since government employment is tenured, pensionable, and carries a high level of social status, graduates often face a phase of long-term wait unemployment, with the support of extensive family networks. The magnitude of this so-called BCS craze is recorded by Kabir (2020), who estimates that the industry of coaching centers in Dhaka alone has hundreds of thousands of students every year at a price of BDT 1,0005,000 a month per student. Rahman et al. (2022) records acute psychological effects of this long-term transition, such as depression, societal pressure, and a low self-image. The net effect is that it leads to a misplaced human capital at the national level and yields little direct economic impact and postpones the productive incorporation of educated workers into the labor market.

2.5 Research Gap

A severe graduate employment crisis in Bangladesh because of structural mismatches and preference of the cultural orientations towards the jobs in the public sector is one of the most consistent findings in the existing literature. Time-use surveys have been well-established by the international empirical literature as a better measure of labor market slack. Nonetheless, even with the already documented psychological and economic impacts of graduate unemployment in Bangladesh, a very important gap exists; no previous research has utilized time-use data to measure and analyze empirically and econometrically the problem of hidden unemployment among Bangladeshi graduates. Current literature is based solely on simple LFS employment states or qualitative interviews (e.g., Nath et al., 2025; Miah, 2022), and does not measure the number of

hours spent by graduates in job-search, exam preparation, and unrecorded transitional states. This is the gap that this paper will fill.

3. Data and Methodology

3.1 Data Source and Sampling Design

The current study will use secondary microdata of the 2022 Household Income and Expenditure Survey (HIES) by the Bangladesh Bureau of Statistics (BBS). The HIES uses a complicated, two-step stratified cluster sampling, whereby Primary Sampling Unit (PSU) participants are chosen by a probability-proportional-to-size sampling, and households are chosen by a systematic sampling within PSUs. This design allows national and regional representativeness in each of the eight divisions of Bangladesh.

To identify the school-to-work transition, the master dataset was limited to individuals aged 22-35 with at least a Bachelor's degree or equivalent (BBS Education Code ≥ 14). With the work of these demographic and educational filters, the initial sample consisted of 3,361 graduates who had complete data on primary activities to analyze the descriptive analysis. In the MLOGIT econometric estimation, only N = 2,032 observations are used (listwise deletion) because a number of missing values exist in one or more covariates parental education and household poverty modules. A sensitivity analysis comparing the demographic characteristics of included and excluded observations assures that the exclusions are not systematically associated with the outcome variable, and that the estimation sample is not significantly different on observable characteristics with the descriptive sample. As with the binary Logit robustness check that isolates the hidden unemployed versus formally employed transition by dropping observation of open unemployed and inactive, the effective sample is N = 1,360.

A significant methodological advancement is the creation of a master dataset through standardization and a combination of six HIES modules: Household Location (Section 1A), Demographics (Section 1A1), Education (Section 2A), Labor Force Activity (Section 1B), Poverty Status, and Survey Weights. In order to avoid losing and duplicating errors of data, strict hierarchical merging protocol was applied in Stata by using a composite key of PSU and household identification number (HHID) as well as individual member identification number. The official population probability weights (pop wgt) are used in all the analyses and Taylor linearized variance estimation is used to generate design-consistent standard errors with PSU level clustering.

3.2 Variable Construction

3.2.1 Dependent variable: labor market status

To overcome the weaknesses of binary employment categories, the dependent variable (labor status) is developed as four nominal, mutually exclusive variable (with nominal scales) based on the activities of the respondent during the seven days of reference period (Module 1B):

1. Formally used (Y = 1): Graduates who made a living or a profit at some point in the reference period.
2. Open unemployed (Y = 2): Unemployed graduates that are actively seeking jobs and may be employed based on ILO standards.
3. Hidden unemployed (Y = 3): students who are not or have not sought out employment, but report their inactivity as either being in an educational institution/training (BBS Reason Code 6) or to start studying (Reason Code 8). This is a combination that systematically brings together graduates who undergo rigorous time on coaching centers as well as competitive examination training.

4. Inactive (Y = 4): Graduates not in the labor force due to family responsibility, illness, or have expressed that they do not desire to work.

3.2.2 Independent variables

A complete summary of all the variables used in the econometric specification is given in table 1. The most important independent variables are: gender (female, binary); parental education (parental_tertiary, binary takes value 1 when at least one parent is a tertiary educator, operationalizing the hypothesis on the luxury of waiting that was originally proposed to South Asia by Ghosh and Ray, 2017); highest education level (edu_level, categorical with pass in Bachelors as the base category); household poverty status

Table 1: Description of Variables

Variable	Type	Description	HIES Source Module
labor_status	Categorical (4)	Four-category labor market status: formally employed (base), open unemployed, hidden unemployed, inactive	Section 1B
hidden_binary	Binary	1 = Hidden unemployed; 0 = Formally employed. Used in binary Logit robustness check only.	Section 1B
female	Binary	1 = Female, 0 = Male	Section 1A1

parental_tertiary	Binary	1 if ≥ 1 parent holds tertiary degree; 0 if first-generation graduate (proxy: family social capital)	Section 2A
edu_level	Categorical	Highest attainment: Bachelor's pass (base), Honours, Master's/Post-grad, Engineering, Medical, Other	Section 2A
poor	Binary	1 if household falls below the upper poverty line; 0 otherwise	Poverty Module
location_type	Binary	1 = Urban, 0 = Rural	Section 1A

Note: All variables derived from BBS HIES 2022 microdata. Binary variables coded 0/1 for use in MLOGIT and Logit specifications.

3.3 Econometric Specification

Since the dependent variable is unordered, categorical, a Multinomial Logit Model (MLOGIT) is the right econometric model. The model gives a probability of graduate i to fall into outcome category j/base category (formally employed, j = 1):

$$P(Y_i = j) = \exp(X_i\beta_j) / [1 + \Sigma_{k=2}^{4} \exp(X_i\beta_k)], \quad j = 2, 3, 4$$

Xi is the variable of personal, household and geographical attributes where xt = i and beta = i are vectors of outcome-specific coefficient. Because the coefficients of raw MLOGIT are in the form of log-odds, which is not easily interpretable, analysis is done on the basis of Average Marginal Effects (AME) the discrete change in the probability of a specific outcome with a unit change in all covariates else held constant.

All of the regressions are estimated by Taylor-linearized variance estimation, population weights are applied, and standard errors are clustered at the PSU level and take into account the intricate survey design as a whole.

The Independence of Irrelevant Alternatives (IIA) was formally tested before interpreting the estimates of the MLOGIT. The IIA assumption is that the relative probability of any two results is independent of the presence or absence of other alternatives- a restrictive but testable property of the MLOGIT model. The Hausman-McFadden specification test was conducted by sequentially drop each type of outcome and re-estimating the restricted model. Subsequent test statistics did not reveal any significant violation of the IIA assumption at conventional levels of significance (chi^2 = 0.00 -3.04, all p = 0.10 and larger), which demonstrates the appropriateness of the MLOGIT specification to the result structure.

4. Descriptive Results

4.1 Sample Characteristics

The sample size used in estimation is 3,361 recent graduates who have full primary activity records. Table 4.A will include important demographic traits, all of which are population-weighted to represent the whole country. The sample is disproportionately male (56.63) and rural (61.49), which are representative of overall distribution of disparity in access to tertiary education by gender and geography in Bangladesh. It is important to note that the proportion of sampled graduates who have at least one parent with tertiary education is high at 54.22%- a number that indicates the intergenerational movement of education levels in the growing educated middle class in Bangladesh, and which forms the basis of the luxury of waiting hypothesis analyzed in the econometric analysis.

Table 4.A: Demographic Summary of the Graduate Sample (N = 3,361)

Variable	Category	Weighted %
Gender	Male	56.63%
	Female	43.37%
Location	Rural	61.49%
	Urban	38.51%
Household Wealth	Non-poor	73.21%
	Poor	26.79%
Parental Education	First-generation graduate	45.78%
	At least one parent with tertiary education	54.22%

Source: Author's calculations based on BBS HIES 2022 data. Weighted percentages account for PSU and regional stratification.

4.2 Distribution of Graduate Labor Market Status

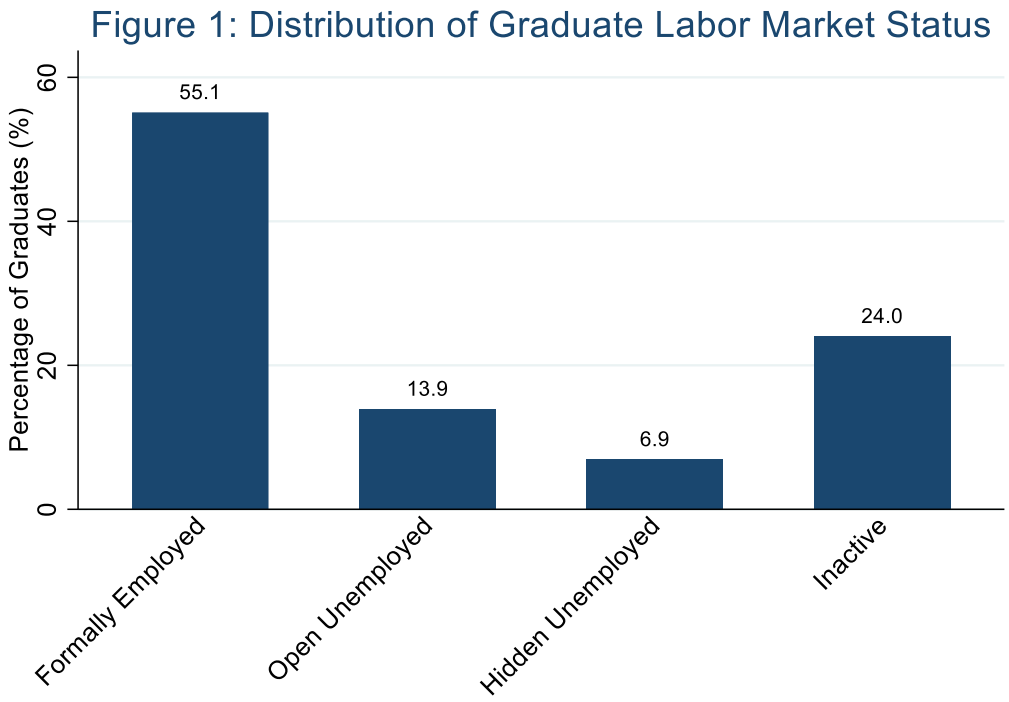


Figure 1: Distribution of Graduate Labor Market Status (Weighted Percentages, N = 3,361, HIES 2022).

Source: Author's calculations based on BBS HIES 2022 data.

Table 4.2 indicates the distribution of the sample into the four mutually exclusive labor market categories. Although most of the new graduates finally attain some kind of formal work,

a large percentage of the human capital of high education is not yet in the formal employment sector indicating extreme structural bottlenecks in the school-to-work transition process.

Table 4.2: Distribution of Graduate Labor Market Status

Labor Market Status	Raw Count (N)	Weighted National %
Formally employed	1,809	55.14%
Inactive	834	24.02%
Open unemployed	439	13.90%
Hidden unemployed	279	6.94%
Total	3,361	100.00%

Source: Author's calculations based on BBS HIES 2022 data. Figure 1 presents these distributions graphically.

4.3 Quantifying Hidden Labor Market Slack

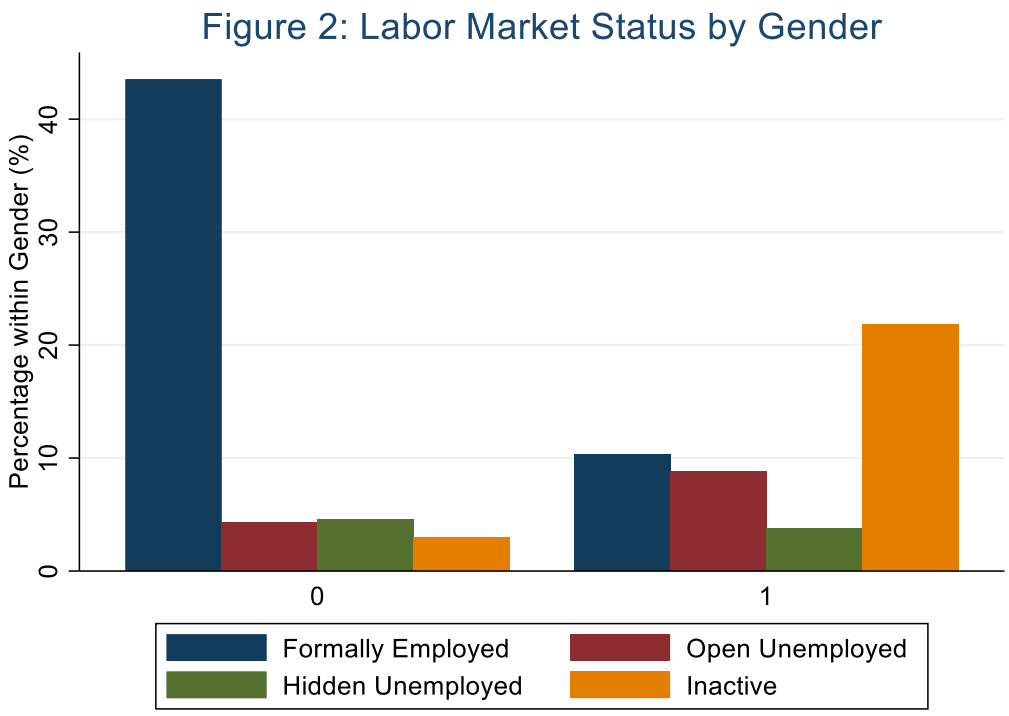


Figure 2: Labor Market Status by Gender (Weighted Percentages, HIES 2022).

Source: Author's calculations based on BBS HIES 2022 data.

The most interesting finding of description is that there is a systematic understatement of slack in the labor market by traditional measures. The 6.94% percent unannounced unemployment rate portrays the slumbering graduates of learning who are under full time studies of examination preparation. This, together with the open rate of unemployment of 13.90, makes an actual rate of underutilization of graduate labor of 20.84% percent--four times the aggregate underutilization rate of graduate labor which is reported. The contribution that the paper makes in terms of the overall quantitative is the difference between the official underutilization rate and the actual underutilization rate of 14-percentage-points. The entire distribution is plotted in figure 1.

The cross tabulation between labor market status and parental education reveals that first-time graduates whose parents had tertiary education significantly represent the large number of the

hidden unemployed compared to first-generation graduates (Figure 3). This initial descriptive pattern is the first hint of a luxury of waiting effect- graduates who are socially desirable are able to take a gamble on the parental subsidy to extend examination preparation which is subsequently analyzed formally in the economic analysis which follows. It is further distributed by gender, and education track respectively which are further broken down in figures 2 and 4 respectively.

As the analysis of the education track (Figure 4) indicates, the graduates of the Bachelor level are not the only ones to encounter the problem of the hidden unemployment. The rate of hidden unemployment of post-graduate and masters level graduates in general academic courses is also consistently high implying that a part of the reason why some graduates undertake postgraduate degrees is to have more time to study to pass competitive civil service exams. By contrast, the proportion of technical track (Medical and Engineering) graduates in the formal labour force and barely detectable hidden unemployment, is also overrepresented, due to the established recruitment channels of the jobs, and immediate marketability of the specific skills.

5. Econometric Results

5.1 Average Marginal Effects on Hidden Unemployment

The MLOGIT estimation results are given in Table 5.1 as the Average Marginal Effects. The overall fit of the model is also very high, and the design adjusted F -statistic is 263.43 ($p = 0.0001$). The AMEs quantify the change in probability of hidden unemployment that varies with one unit change in each covariate, other covariates being held constant at their sample means.

Table 5.1: Average Marginal Effects on Probability of Hidden Unemployment (MLOGIT)

Explanatory Variable	AME (dy/dx)	Std. Error	P-Value

Female (base: Male)	0.0715***	(0.0226)	0.002
Parental education — tertiary (base: first-generation)	0.1211***	(0.0165)	0.000
Household poverty (base: non-poor)	0.0182	(0.0271)	0.501
Location — urban (base: rural)	0.0209	(0.0182)	0.253
Bachelor's Honours (base: Bachelor's pass)	-0.0016	(0.0672)	0.980
Post-Graduate / Master's	-0.1137*	(0.0604)	0.060
Engineering	-0.0543	(0.0733)	0.459
Medical	0.0393	(0.0952)	0.680
Other qualifications	-0.1254*	(0.0662)	0.059
Design-adjusted F-statistic	263.43***	—	0.000
Estimation sample (N)	2,032	—	—
Weighted population size	23,980,622	—	—

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All estimates use Taylor-linearized variance estimation with standard errors clustered at the PSU level. Population probability weights applied throughout. Base outcome: formally employed.

5.2 Gender and the Hidden Unemployment Penalty

Female graduates are also more likely to be in hidden employment by 7.15 percentage points than their male counterparts, all other factors being held constant ($p = 0.002$). This finding is consistent with the structural features of the Bangladesh labor market, according to Kabir (2020)

and Rahman et al. (2022): female graduates face systemic disadvantages in the private sector, including hostile workplace conditions, inadequate maternity policies, the existence of risk factors associated with transportation, and flexible working hours, which considerably reduce the attractiveness of instantaneous jobs in the private sector in relation to the As a result, the major practice by female graduates in the labor market is the overrepresentation in long-term training in the civil service examination.

5.3 The 'Luxury of Waiting' Effect

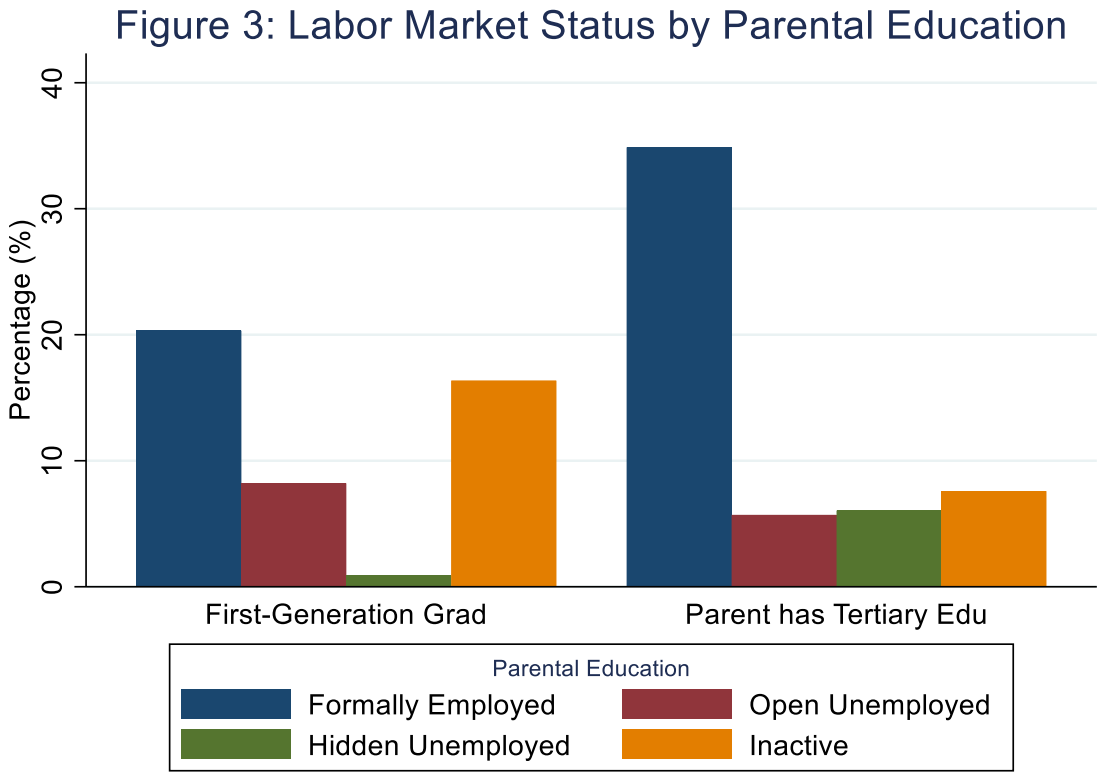


Figure 3: Labor Market Status by Parental Education (Weighted Percentages, HIES 2022).

Source: Author's calculations based on BBS HIES 2022 data.

The substantively most significant finding is high, strong influence of parental education. Graduates with at least one parent with some tertiary education have higher chances of having hidden unemployment by 12.11 percentage points than first-generation graduates ($p < 0.001$). And this is the solid empirical confirmation of the hypothesis of the luxury of waiting, which was originally formulated by Ghosh and Ray (2017) when they were analyzing the culture of the civil service examination in India. Favored families are able to provide the funding and social contacts to allow graduates to spend years of unpaid study in preparation to pass exams, yet first-generation graduates tend to be forced to work formal or informal jobs to make money to feed their families.

What this finding means is counterintuitive: poverty or disadvantage in the first place does not contribute to the hidden unemployment. Rather, it is an indulgence, the ability to wait is a matter of family resources. The economically advantaged part of the non-employed graduate population is in an important sense the hidden unemployed. These re-states the policy problem: it is not that jobs are not available, but that there is an incentive design structure that makes long wait times a strategic decision of a specific segment of the graduate population.

5.4 Education Track and Diminishing Returns to General Credentials

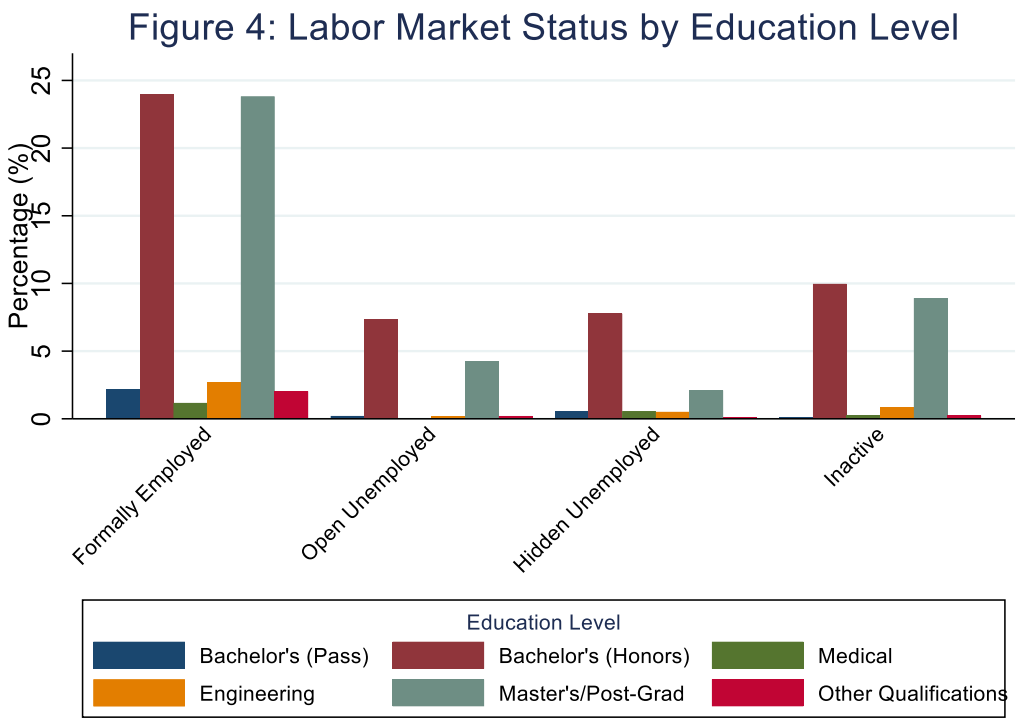


Figure 4: Labor Market Status by Education Level (Weighted Percentages, HIES 2022).

Source: Author's calculations based on BBS HIES 2022 data.

Other variables being equal, having a post-graduate degree is linked with a reduction in the likelihood of hidden unemployment by an 11.37 percentage points compared to having a Bachelor's pass ($p = 0.060$). This trend implies that the first post-graduation years, when the candidate has a Bachelor degree are the most dangerous years in terms of hidden unemployment risk. The completion of the post-graduate either makes it easier to enter formal employment by making them more qualified or it coincides with age requirements that effectively disqualify candidates to entry-level civil service examinations, compelling them to leave the waiting state. The fact that the Engineering and Medical coefficients are not significant compared to general academic tracks is an indication of their organized employment pipeline that will place graduates into formal employment with a very short transition time.

5.5 Non-Significance of Geography and Poverty

Neither urban/rural location nor household poverty proves to be a statistically significant predictor of hidden unemployment ($p = 0.501$ and $p = 0.253$, respectively). It is an intriguing finding: competitive credentialing and wait-unemployment culture is not limited by the geographical and instant income limits as soon as tertiary education is achieved. The gender relations and family social capital are the primary determinants of the hidden unemployment propensity--not the place of residence of a graduate or the affluence of his or her household. This finding suggests that interventions or poverty-specific programs with a geographic focus will not be effective tools to alleviate wait-unemployment. It is a structural and cultural issue which requires systemic and not targeted solutions. The reservation wage effects that influence wait behavior are motivated by social aspirations, as opposed to economic need, as Ghosh and Ray (2017) also find in India.

5.6 Robustness: Binary Logit Specification

To confirm the key MLOGIT results and to take into account the binary nature of the successful-versus-stalled school-to-work transition, a binary Logit model was estimated between the hidden unemployed ($Y = 1$) and formally employed ($Y = 0$) excluding the open unemployed and inactive categories to isolate the phenomenon of wait unemployment. The Average Marginal Effects of this specification (Design-Adjusted $F = 9.03$, $p < 0.0001$; $N = 1,360$) are reported in Table 5.2.

Table 5.2: Average Marginal Effects — Binary Logit Robustness Check (Hidden Unemployed vs. Formally Employed)

Explanatory Variable	AME (dy/dx)	Std. Error	P-Value

Female (base: Male)	0.2157***	(0.0423)	0.000
Parental education — tertiary (base: first-generation)	0.1303***	(0.0252)	0.000
Household poverty (base: non-poor)	0.0301	(0.0366)	0.412
Location — urban (base: rural)	0.0216	(0.0267)	0.419
Bachelor's Honours	0.0557	(0.0839)	0.507
Post-Graduate / Master's	-0.1070	(0.0729)	0.143
Engineering	-0.0048	(0.0906)	0.957
Medical	0.0183	(0.1080)	0.865
Other qualifications	-0.1247	(0.0830)	0.134
Design-adjusted F-statistic	9.03***	—	0.000
Estimation sample (N)	1,360	—	—
Weighted population size	16,167,962	—	—

Notes: *** $p < 0.01$. Standard errors in parentheses, clustered at PSU level. Population weights applied.

The main MLOGIT results are solidly supported by the Logit specification. The so-called luxury of waiting effect is relatively high: the graduates whose parents are tertiary educated tend to face hidden unemployment instead of formal jobs 13.03 percentage points more. This specification increases the gender penalty: female graduates are found to be more likely to encounter hidden unemployment by 21.57 percentage points. The poverty of households and geographic location are not statistically relevant. The fact that the signs, magnitudes and

significance of both the complete MLOGIT specification and the binary Logit robustness check are consistent, lends great credence to the econometric identification strategy. Also, a Variance Inflation Factor (VIF) test based on a normal OLS specification, indicated a Mean VIF of 2.55, and all non-categorical values were under the traditional threshold of 5.0, meaning that multicollinearity is not a source of bias.

6. Conclusion and Policy Implications

6.1 Summary of Findings

This paper has tried to critique the school-to-work transition of the recent university graduates in Bangladesh based on a broader notion than the dichotomous categorizations of the traditional labor force surveys. The study, which was performed with time-use-based operationalization of hidden unemployment and nationally representative microdata based on HIES 2022, uncovers, and measures a substantial amount of slack in the labor market, which is systematically concealed by official indicators.

The descriptive analysis indicates that the official open unemployment rate among graduates of 13.90% is much lower as compared to the actual underutilization. The other 6.94% percent of the graduate population is busy with economically inactive full-time preparation of the examination and adds to the true rate of labour underutilization to 20.84% percent. Econometric estimation demonstrates that this hidden unemployment is not distributed randomly: graduates with more social capital (which is proxy by parental tertiary education) are far more susceptible to becoming trapped in this state, which heavily confirms the hypothesis of the luxury of waiting that had been earlier reported in the South Asian context by Ghosh and Ray (2017). Punishment that is harsh is given to women graduates. Household poverty and place of residence, though, are not

such powerful predictors, so wait unemployment is a more of a by-product of gender relations and family social capital than of immediate economic constraints- a finding also consistent with the broader extended South Asian literature on credentialing culture.

6.2 Policy Implications

6.2.1 Reforming public sector recruitment

The most immediate cause of the covert unemployment is the long-term, years-long hiring process of the BCS and state-owned financial institutions. Legally binding time-bound schedules of recruitment, reducing the turnaround time of application-to-appointment schedule to a maximum of six or eight months should be enforced by the Ministry of Public Administration. Recruiting infrastructure (digitizing the examination delivery, processing of results, and defining transparent appointment schedules) would remove the ambiguity, which contributes to years of anticipatory preparation. This structural reform alone would shorten greatly the projected length of hidden unemployment by decreasing the time frame within which long-term preparation is a competitive edge.

6.2.2 Addressing gender inequity in the private sector

The extreme gender wage penalty observed to exist in both model specifications show that female graduates are disproportionately waiting in line to work in the public sector to escape the unfriendly or rigid private sector. To do this, it is necessary to implement high levels of gender-equity in the private sector, such as the obligatory balance of paid maternity leave, transport subsidies to female employees working in insecure locations, and introduction of grievance mechanisms on workplace harassment. And unless the private sector is made a truly viable short-

term substitute, the women graduates will still be overrepresented in the file of hidden unemployment.

6.2.3 Reforming education and labor force measurement

The University Grants Commission (UGC) must redistribute tertiary subsidies and funding between STEM and TVET programs with organized employment pipelines, and implement co-designed curricula that require compulsory semester long industrial apprenticeships on graduation. This would minimize the number of graduates whose qualifications are not directly relevant to the working life in the private sector. On the statistical level, the BBS needs to embrace wider labor underutilization indicators that are in line with ILO guidelines, and it should also come up with specific sub-categories under labor force survey of people who are involved in competitive examination preparation. What is not counted, cannot be addressed.

6.3 Limitations and Future Research

This study has various limitations that ought to be taken into consideration when interpreting its results and inspire future research. First, HIES 2022 is limited to cross-sectional, so longitudinal analysis of specific transition pathways or causal inference cannot be performed. Panel data would allow to estimate the period of time of hidden unemployment spells and to determine the factors that facilitate transition to formal employment. Second, the parental education proxy of social capital, although conventional in the literature, does not completely separate family wealth, social networks, and cultural attitudes towards risk, all of which are likely to affect waiting behavior. The parental education effect estimated should thus be understood as a wider set of family social capital endowments and not education per se. This possible endogeneity is an acknowledged drawback of cross-sectional designs, and cannot be entirely addressed without

instrumental variable designs or panel data. Third, there is a risk of reporting bias on self-reported primary activity status especially where there is social stigma that might influence reporting exam preparation activities.

Future studies are urged to focus more on longitudinal panel data of graduate employment transitions in Bangladesh, and preferably comparable cross-country data to allow systematic South Asian comparisons. A combination of the qualitative approach and the quantitative framework that is going to be developed in this paper would add to the comprehension of the social and psychological processes that lay the foundation of wait behavior that cannot be fully represented by an econometric analysis.

6.4 Concluding Remarks

Bangladesh is at a very high cross road of demographic dividend. Wait-unemployment, where over a fifth of its most educated graduates are actually underutilized in a trap of intensive, but uncompensated preparation is a culture that exhibits millions of hours of productive labour, and a huge deadweight loss to the national economy. The phenomenon is not merely the consequence of the absence of employment; it is the consequence of the incentive structure which is distorted in such a way that the expected benefits of waiting are large enough such that the policy of non-employment over years is a rational individual decision, even though the social cost is cumulative. Bangladesh must transform this architecture to realize sustainable and inclusive development: it must reduce the length of recruitment processes, must address the conditions within the private sector that would enable female graduates to work, must redress the incentives in the education sector towards what it can sell in the short term, and, most importantly, it must alter its statistical framework, with which it views its own labor market. What is not counted is not taken care of.

References

Aguiar, M., Hurst, E., & Karabarbounis, L. (2013). Time uses during the great recession. American Economic Review, 103(5), 1664–1696.

Antonopoulos, R., & Hirway, I. (Eds.). (2010). Unpaid work and the economy: Gender, time use and poverty in developing countries. Palgrave Macmillan.

Asian Development Bank. (2019). Bangladesh: Issues and trends in the labor market (ADB Economics Working Paper Series No. 582). Asian Development Bank.

Bangladesh Bureau of Statistics. (2022). Household Income and Expenditure Survey (HIES) 2022. Ministry of Planning, Government of the People's Republic of Bangladesh.

Bangladesh Bureau of Statistics. (2023). Bangladesh Labour Force Survey report 2022. Ministry of Planning, Government of the People's Republic of Bangladesh.

Baum, T., & Mitchell, W. (2010). Inadequacy of work, underemployment and unemployment: Investigating the labour force. The Economic and Labour Relations Review, 21(1), 59–78.

Becker, G. S. (1964). Human capital: A theoretical and empirical analysis with special reference to education. University of Chicago Press.

Bidisha, S. H., & Barman, S. D. (2022). Problems and prospects of youth employment in Bangladesh. Development Studies, 45(1), 23–45.

Ghosh, P., & Ray, S. (2017). Graduate unemployment in India: Waiting in queue for the government sector. Indian Journal of Labour Economics, 60(3), 355–376.

Gunatilaka, R. (2013). To work or not to work? Factors holding back educated youth from the labour market in Sri Lanka. ILO Asia-Pacific Working Paper Series. International Labour Organization.

Hirway, I. (2010). Understanding labour market using time use surveys. Paper presented at the Expert Group Meeting on Time Use Statistics, United Nations Statistics Division, Geneva.

International Labour Organization. (2013). Measuring informality: A statistical manual on the informal sector and informal employment. ILO.

International Labour Organization. (2015). Guidelines for a just transition towards environmentally sustainable economies and societies for all. ILO.

International Labour Organization. (2020). World employment and social outlook: Trends 2020. ILO.

Kabir, A. (2020). BCS craze in Bangladesh: Relevance of civil service to higher education graduates. Asian Public Policy, 13(2), 185–201.

Khan, A. (2019). CSS examination and graduate unemployment in Pakistan: A labor market analysis. Pakistan Development Review, 58(1), 45–67.

Krueger, A. B., & Mueller, A. I. (2012). Time use, emotional well-being, and unemployment: Evidence from longitudinal data. American Economic Review, 102(3), 594–599.

Miah, M. (2022). Graduate unemployment in Bangladesh: Causes and consequences. Journal of Development Policy, 12(1), 45–68.

Nath, S., Islam, M., & Ahmed, R. (2025). Structural determinants of graduate unemployment in Bangladesh: A qualitative investigation. South Asian Economic Journal, 26(1), 12–34.

Ozerkek, Y., & Sonmez, M. (2021). Time-related underemployment in labour force surveys: Evidence from Turkey. Labour Economics, 71, 102025.

Rahman, M., Hassan, T., & Alam, F. (2022). Psychological consequences of graduate unemployment in Bangladesh. Journal of Mental Health and Society, 8(2), 112–129.

Rashid, M., & Islam, N. (2020). Skills mismatch and graduate employability in Bangladesh. Bangladesh Journal of Economics, 15(2), 88–104.

Schoon, I., & Silbereisen, R. K. (2009). Transitions from school to work: Globalisation, individualisation, and patterns of diversity. Cambridge University Press.

Statements and Declarations

Ethical Considerations

The current paper analyses secondary, anonymized of the 2022 Household Income and Expenditure Survey (HIES), which is publicly available on Bangladesh Bureau of Statistics. None of the direct human subject's data collection. No ethics approval on research was needed in this study.

Consent to Participate

Not applicable. The data contained in this paper is a secondary survey data, which is anonymized.

Consent for Publication

Not applicable

Declaration of Conflicting Interest

The author(s) declared no potential conflicts of interest as far as the research, authorship and/or publication of this article is concerned.

Funding Statement

No special grant was provided by any public, commercial or non-profit funding agency to this research.

Data Availability Statement

The statistics behind the results of this research is available in the Bangladesh Bureau of Statistics (BBS). The 2022 microdata of Household income and expenditure Survey (HIES) can be obtained under a reasonable request on the BBS under their data access policies (https://bbs.gov.bd).