Why People are Willing to be Out of the Labour Force: A Case Study of Swegalai Swat

Muhammad Jasim[1], Anwar Shah[2], and Najibullah[3]

[1]Quaid-i-Azam University, Islamabad, Pakistan, Email: jasimm715@gmail.com
[2]Quaid-i-Azam University, Pakistan, Email: anwar@qau.edu.pk
[3]Quaid-i-Azam University, Pakistan, Email: najibullah052@gmail.com

Abstract

The standard labour force criteria exclude those adults from unemployment who are neither doing jobs nor searching for them. These conditions pose a dilemma for policymakers because, in developing nations, nearly half of the adult population is excluded from the labour force, particularly in rural communities. This work aims to examine, why rational people would like to stay out of the labour force. For this purpose, we collect primary data from a village Swegalai, Swat district of KP, Pakistan. The empirical findings show that the conventional definition of unemployment does not consider 62.03% of the adult population in the labour force. The study examines the hurdles of initiating an economic activity and determines the lack of funds as the variable of interest for the non-conventional unemployed labour force. It is advised to construct such policies taking suitable local consideration of demographic dividends into account. Additionally, to increase opportunity by removing barriers such as a lack of resources (land, capital, skills), and to support women's empowerment and education. It will be a step toward increased income creation, which might result in community wellbeing.

Keywords: Adult population, Unemployment, Non/Conventional labour force, Hired/ Entrepreneurial factor of production, Hurdles, Demographic dividend and Opportunity

JEL Classification: J64, J82, R23

1. Introduction

Unemployment as well as labour force participation rate are the main and sensitive economic indicators across the globe.[1] The Organization for Economic

[1] Jones and Riddell 1999.

Cooperation and Development (2022)[2] has documented an unemployment rate of 5.3 per cent, World Bank (2019) a 5.5 per cent while the International Labour Organization[3] (2018) recorded it at 5 per cent, globally.[4] In Pakistan, from 2007-08 to 2017-18 the population increased from 163.7 to 206.6 million (mn). Its major share of 63.5 per cent belongs to the rural community while the remaining 36.5 per cent to the urban. The adult population of Pakistan (122.2 mn) is 59.1% of the total population. The key point is, that in policies on employment and unemployment, the policymaker just targets 51.9 per cent of the adult population. The remaining 48.1 per cent of working-age people have no good fortune in debates and policies under consideration.[5] In the system of national accounts, the

[2] https://www.oecd.org/newsroom/unemployment-rates-oecd-update-march-2022.htm
[3] Abbreviated as "ILO", it is the United Nations agency which deals with the labour issues such as international labour standards, social protection, and equal employment opportunities
[4] World Employment Social Outlook Trends-ILO, 2019
[5] See Appendix

4.3 Hurdles Facing Unemployed Labour Force (Non-Conventional)

Table 13 determines the impact of hurdles of the unemployed labour force (ULF) non-conventionally estimated through the probit model. The dependent variable is differentiated by extra consideration of those entities who desire self-managing work. The variable of interest is categorical and named hurdles (lack of capital, skill, land, market, or other (if any)). If an individual has the prescribed hurdles in starting income-generating activity; we assign him/her 1 and zero to those individuals who are happy in their work activity. In the first column or model (1) we just estimate the association between dependent and independent variables omitting all other socioeconomic entities. In model (2) we incorporate personal factors i-e gender, age and education as the control group. The parameter estimated shows that having hurdles in starting work given the personal aspects, increases the likelihood of the adult population to shift toward ULF by 70.2 per cent, significantly. Adding up demographic factors (children in family and family system) as control variables in the model (3), the hurdles still significantly and directly corresponds to ULF (non-conventional). The marginal effect (dy/dx) can be interpreted here as the individual facing constraints his/her probability to remain unemployed increases by 70.8 percentage points. The derivative value is showing a higher probability than other models. The number of earners and assets index of a family has been taken as the economic indicators integrated into the model (4) as well. Being all the control variables till now hurdles significantly increase the probability of individuals being ULF by 60.5 percentage points. To include religiosity such as interest loan denial also in the control group, we estimate the model (5). The 'hurdles' illustrate significant and direct relationships till now. It spurs the likelihood by 60.9 per cent. The value of pseudo R^2 also increases gradually up to 63.5 as the control group has increased from the model (1) to (5). Hence, the impact of hurdles on the unemployed

labour force (non-conventional) persistently remains strong positive in the overall table while circulating only in 13 decimal points.

This indicates that non-conventional unemployment persistently depends upon hurdles faced in initiating economic activities. If a person desires to be an independent worker but faces a hurdle in its starting should be a direct and significant association with ULF. No doubt, this class of labour force has a differentiated behaviour in starting work than those who search salary or wage-based work, thus needs an unusual policy orientation.

5. Conclusion and Policy Recommendations

The unemployment rate as well as labour force participation are both sensitive economic indicators. However, per ILO definition a major portion of our labour force land in the category of OLF. To challenge this aspect of the ILO definition, the question arises that why a rational economic agent whose objective is the maximization of income would stay out from earning. Hence, we postulate that a person who neither does a wage-paid job nor search it may not like wage paid job but it is not necessary that he is also not interested in doing any cash work. To analyse whether this is the case or not? For providing an answer to the question based on evidence, primary data has been collected from a village Swegalai, Swat. The questionnaire contains about 80 questions and the survey was completed from March to May 2020. The focus of the survey was the adult population aged 15 years and above. The village was cauterized into 4 informal cooperative committees and randomly picked up 8 to 10 households. The questionnaire was conducted by the head of the household which is mainly consisting of questions about socio-economic and demographic information of the household.

To evaluate data per ILO criteria 3.74 per cent of working-age people are unemployed and 62.03 per cent are excluded from the labour force. While per our criterion, the unemployed labour force is 31.02 per cent which is much higher than conventional. However, out of the labour force is 34.76 per cent of the adult population. The data confirms that non-conventionally 46.96 per cent of working-age people are either employed or unemployed and are facing hurdles (lack of capital, skills etc) while desiring income-generating activity. Out of them, 16.5 per cent are employed and 29.9 per cent are unemployed and face hurdles while trying to start their entrepreneurial work. The result depart from the conventional approach and point out that it underestimates unemployment (Jones & Riddell, 2019; Brandolini & Viviano 2014). There are other socio-economic and demographic issues due to which this state of adult population land in out of the labour force. Based on regression, it has been found that the gender in both consecutive approaches (conventional and non-conventional) is inversely and significantly allied to OLF. This conveys the message that the female population is less participated in economic activities (Hafeez & Ahmad, 2002; Fellnhofer et al., 2016). Furthermore, age, education particularly higher education, number of

earners, high consumption-income ratio (here if more than 80 per cent) and asset index are associated with OLF (conventional) significantly. The association of asset index and high consumption to income share is directly linked to it, while the remaining factors are inversely related to OLF (conventional). In the conventional approach, education is a prominent indicator for OLF. At least middle (8 years) education and onward showing inverse and statistically significant affiliation to OLF comparatively to primary education. This proves that the education system has a good well to enhance human capital accumulation (Hafeez & Ahmad, 2002; Linan et al., 2011).

In the non-conventional approach, only gender and hurdles are inverse and significant factors to OLF (Fellnhofer et al., 2016; Levesque & Minniti, 2006). As in gender parity in economic activity participation Pakistan has been ranked 150th out of 153 countries. It also demonstrates that if an individual land in OLF conventional not because s/he is happy with his time allocation but due to some hurdles facing (like lack of capital, land, training, marketing and others) while desiring his enterprise (micro-enterprise like livestock, agro-inputs, retail lodge, a small hut, cart etc) to maximize his utility. Then it is not rational behaviour to put him in OLF. Everyone must allocate more time in his own expertise (Becker, 1965).

The ILO's criteria for measuring unemployment are strict for developing nations, particularly in rural regions as they exclude a two-thirds portion of the working-age population from activity participation. it is suggested that ILO and academia should formulate the relax standards from traditional unemployment measuring, where the desire for both HFP and EFP, even if it is informal, is countable. It is recommended to construct such policies taking suitable local consideration of demographic dividends into account. Additionally, to increase opportunity by removing barriers such as a lack of resources (land, capital, skills), and to support women's empowerment and education. It will be a step toward increased income creation, which might result in community wellbeing.

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Conflict of interest

The authors declare that they have no competing interests.

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non-working adults, who are not available or looking for jobs at referenced period, are not counted in the labour force.[6] To alleviate poverty, we need to make such human force economically active for the reason that both unemployment and poverty move side by side (Paul et al., 2018).

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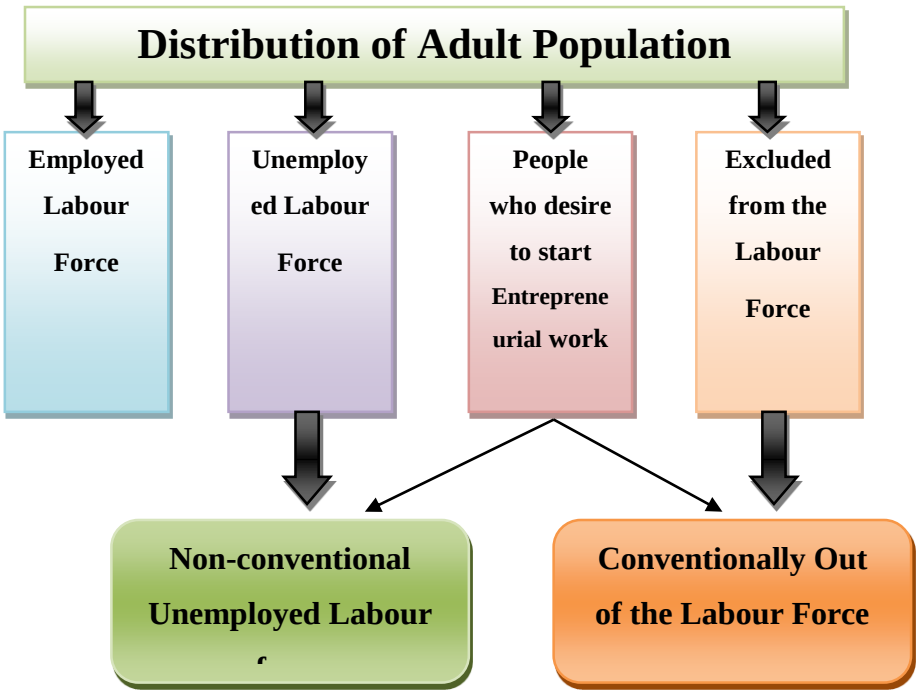
Appendix-I.

[6]See (Quick guide on interpreting the unemployment rate, 2021).

In developing economies like Pakistan, the unemployment rate is persistently remaining below 10 per cent for more than a couple of decades such as 4.35 per cent in 2021 exceeding by 0.05 per cent in 2022 (World Bank, 2021). On the other hand population growth and youth strength here is significantly high (Streeten, 1982). To attach or detach inactive potential people to the labour force is a correspondingly hard-hitting job. Particularly, in rural communities where education, skills, training etc are comparatively lower with higher gender parity. The workforce employed or unemployed remains a part of the policy matters but actually, the inactive labour force is excluded from dialogue and policy by design (Norwood, 1988). Determination real unemployment level in the economy creates confusion because of having an unplugged fraction of the adult population.[7] Although job search period and discouraging labour force in unemployment determination are effectively concerns to policy perspective (Brandolini et al., 2006).

Figure 1: Flow chart for the distribution of the adult population



Pakistan is the 5th populous country[8] and secondly ranked in youngster populated worldwide. In 2015, the United Nations implemented a new set of 17 goals to eradicate poverty, protect the environment, and establish socioeconomic

[7] People aged 15 years or above.
[8] Closed to 212 million.

inclusion, known as the New Sustainable Development Goals (SDGs) Najibullah et al. (2021a, 2021b). Particularly the economic goals of (SDGs) are concerned with the provision of productive employment and decent work.[9] It is indicated that 15 years and onward age people are 61.4 per cent of the population. Out of this portion, about 48 per cent are out of the labour force (OLF) nationally. While in some provinces such as Khyber Pakhtunkhwa (KP) labour force participation rate is 35.5 per cent. [10] The question is why such a huge number of labour force opts to stay out of the labour force. Either they have no interest to participate in any income-generating activity or are only unwilling to take part in doing wage-paid jobs? For this purpose, the study differentiates human capital in hired factor of production (HFP) and entrepreneurial factor of production (EFP). HFP is willing to offer his/her work services against fixed wages and EFP offers it for profit. Current literature mainly revolves around HFP while ignoring EFP if non-registered. This EFP exists in society but is not reflected in the unemployment data. While the actual number of such labour force might be much higher than the given estimates about unemployment (Luebker, 2008).

Politicians avoid discussing the underlying meaning of unemployment measurement in public forums while praising the low unemployment rate. This low unemployment rate could be a result of economic stagnation. However, this information is not trustworthy for the general population. How can one cheer at the low unemployment rate when two-thirds of the adult population, especially in rural parts of developing countries like Pakistan is not utilised? How can one have a greater utility level with a higher dependency level and less earner in the household when economic rationality says that more income is preferable to less? How will it be resolved the issue of migration from rural areas to the large cities which are already congested, illegal border crossing and foreign dependency if academia, national and international institution just rely on conventional criteria for the measurement of unemployment which suit mainly the developed world? In light of this, the research aims to loosen the ILO criteria of conventional unemployment measurement, where the desire for both HFP and EFP, even if informal, is countable. Hence, this issue motivated us to do work on this aspect.

To count how many of such human capital is in our society and how many of them are willing to become a part of income-generating economic activity but are not willing to be part of wage-paid jobs. The task is to examine why one remains OLF as well as stays inactive economically. In other words what are those constraints that make someone stay in OLF? However, it is the objective of every rational person to make money. It is irrational to decline earning opportunities but it might not be irrational to decline jobs as one may feel that he can earn more than a job if initiates entrepreneurship. We hypothesise that the possible reason for opting for OLF is entrepreneurship. Also to determine the relationship between non-conventional unemployment we hypothesise that a person who desires to start a self-managing enterprise is facing of hurdles.

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[9] See ILO, 2018; https://www.ilo.org/ilostat-files/Documents/Guidebook-SDG-En.pdf.
[10] Labor Force Survey (LFS), 2017-18.

For this purpose, we conduct a field survey from village Swegalai, Swat district of KP, Pakistan. To analyze the data, we have utilized the binary logit and probit model and attained a diversified result both in conventional and non-conventional approaches which is discussed in detail hereafter systematically.
Following this section, the study is organized as follows. Section 2 deals with the review of the literature. Data and methodology compile in Section 3. Section 4 presents empirical analysis and results. Last but not the least, the conclusion and policy recommendations of the study are accumulated in Section 5.

2. Literature Review

Researchers have analyzed unemployment and labour force transition from a different perspective. There exists rich literature on its micro/macroeconomic perspective. Flinn and Heckman (1983) were the first to initiate negotiation regarding the allocation of the non-employed adult population. Their work accumulated based on search theory's act that belongs to the facilitation of unemployment in the job search. They target the United States (US) labour market (122 young men consistently) for 30 months after their matriculation. They explore that the jobs offered are directly related to but less to the unemployed labour force than that of excluded forced labour. This means that employment growth is less than population growth. Their main finding is that the difference due to behaviour aspect in transition to employment in the unemployed and inactive population has no sense.

Jones and Riddell (1999, 2006 and 2019) consistently elaborated on the idea and included the marginally attached[11] labour force by presenting the Markov model. For both US and Canadian labour markets even cross-sectional, quarterly and bi-annual data sets are utilized. Through the multivariate Logit model and transition-probabilities-approach, switching to employment deliberated from different non-employment positions. Their persistent suggestions evoke that unemployed, marginally attached and not in the labour force are completely distinct in switching behaviour from non-employment to employment.

Brandolini et al. (2006) exceeded the above model for the European Labour market and inspected; is it true to say that ILO's definition of unemployment captures it all? They targeted a boundary of the inactive and active labour force as potential labour force (who exceeds the last search for work than four weeks). For this purpose, they extract data from European Community Household Panel from 1994 to 2000. To analyze the phenomenon they do rely on the transition-probabilities-approach for their specific non-employed labour force groups i-e unemployed and potential to employ. Firstly,

[11] Marginal attachment and not in labour force non-conventionally are compiled as exclude from labour force conventionally. Marginal attachment examined in various perspectives, our primary focus is on individuals who did not search for work but report that they desired work (Jones & Riddell, 1999).

their results show that the potential labour force represents their labour market controversial to unemployed. Secondly, they use the proxy "job search intensity" by relaxing of job search criterion from 1 to 11 months (specified to a group of people) and found similar results for both unemployed and potential labour force. The study suggests that tightening the job search duration excludes potential from the labour force while the theory of hiring rate relies on both unemployed and excluded labour force.

Brandolini and Viviano (2014) suggested that reducing the unemployment rate is better than focusing on employment rate enhancement. The rate of employment is targeted at 75 per cent in the 2020 new Europe strategy. The study preferred registered data (unemployed people registered their-selves for seeking benefits and assistance in employment and data extracted from European Union Statistics on Income and Living conditions (EU-SILC)) instead of EU-LFS which they got from Euro-stat (2013a). They elaborated that if the work done in non-paid form (grandparent child care) is uncountable in GDP rather than the same work performed by a paid nanny is countable. Nevertheless, a paid job is more valuable than a non-paid but a child's need fulfilled is effective in the same way in the given situation. Hence the authors preferred work intensity[12] instead of the headcount dichotomous mechanism. For this purpose, they settled on a framework and indices for measuring generalized employment rate (where both ILO criteria and normative work intensity are considered). Through the work intensity mechanism, the difference between North/South Europe in labour supply became narrowed down. However, the behavioural intentions towards conventional employment and work intensity are different. They concluded that the unemployment rate is a sensitive indicator in policy orientation, and if ILO formulates its definition on a normative basis will be more informative than the existing one.

Streeten (1982) also discussed in the world bank report that for three decades the rate of unemployment remain approximately less than 10 per cent, due to the strict definition of ILO unemployment. In developing nations these types of figures are controversial because the youth population growth rate is very high typically at the rural level, the ILO's constrained system is not working as much as it is reliable in developed nations.

Luebker (2008) focused on informal work both on a job and an enterprise basis in Zimbabwe. For analysis and statistics decomposition, he used the LFS of 2004. To explore the authentic quantity and quality of work and labour market statistics it is essential to move far beyond the traditional setups, as his paper suggested. Furthermore, argued that the Classical model[13] ignores the occupational sector as it shifts from an agrarian economy to an industrial economy. While up to 80 per cent of employment contributed from informal occupations. The study commends the policy that ILO must be taken initiatives

[12] Work intensity the total hours worked in a year as a ratio to the average annual hours worked in a full-time full-year job.
[13] See Zedadra et al. (2019).

like debates/research to cope with potential and inactive human capital (Zouhar & Lukes, 2008).

Litra (2017) also investigate harmonized and register unemployment, particularly in Romania. Harmonized unemployment data can be collected through the national labour force survey method. It has designed under the ILO standard criteria. While registered unemployment varies from country to country. Because rules and benefits kept their National Employment agencies may be same/differ. The yearly data utilized ranges from 2012 to 2016 and monthly from January 2013 to January 2014. The author differentiated both methods' features like data collection sources, definitions, methods of measuring etc. She gives importance to both methods and suggests that both methods collectively present the real image of the Romanian labour market.

Hafeez and Ahmad (2002) designed a survey-based work on factors those influence the educated and married females in labour force participation using Logit and Probit models for data analysis in district Mandi-Bahaudin, Pakistan. Their empirical work clarified that education in the female population has a positive and significant relationship to their activity participation. Some economic indicators like family's income (except for female personnel and husbands) on monthly basis, family workers and liquid assets are inversely and statistically significant corresponding to female labour force participation. While factors like age, family system and size directly relate to female activity contribution. Their suggestion to policymakers was to be carefully addressing these issues, so it will improve female contribution to the labour market.

In summary, somewhere unemployment literature preferred the conventional definition of unemployment (Litra, 2017). Some studies depart from the conventional definition and point out that it underestimates unemployment (Jones & Riddell, 1999, 2006 and 2019; Brandolini et al., 2006; Brandolini & Viviano 2014 etc). This study keenly focuses on the true essence of excluded part of people who desire entrepreneurial work. To resolve the issue of underutilization of demographic dividends, where in developing nations two-thirds of the adult population has been excluded from the labour force, academia and institutions should use non-conventional approaches. As economic logic dictates that having more income is better than having less. This is why the study seeks to relax the ILO standards from traditional unemployment measuring, where the desire for both HFP and EFP, even if it is informal, is countable. To the best of our knowledge, investigating the desire for initiating own enterprise even if small and informal, and enumerating data from the field is the contribution of this work. The next section provides details regarding the collection of data and methodology.

3. Data and Methodology

3.1 Data Collection

The aim is to show whether out of labour force people per ILO definition are unwilling to participate in income-generating economic activity. Are they not interested in jobs or income? To find out the answer to such a question we survey a well-structured questionnaire. The questionnaire is mainly based on the questions from LFS's questionnaire (2018). The survey was conducted in Swegalai, district Swat, Pakistan from March 2020 to May 2020.

The focus of the survey was the adult population aged 15 years and above. The total population of the locality consists of 148 households. There are 4 informal cooperative committees called *kalweeghi*.[14] We collect the list from the heads of committees and randomly choose first from each list. The number of households then extended from 8 to 10 systematically. The questionnaire was conducted by the head of the household. The questionnaire is consist of questions based on socioeconomic and demographic information. Likewise, it has questions about family members who are neither doing nor searching for jobs. Specifically, Question 6 in the questionnaire *"Would you like to do your work or are you happy a wage/salary based work?*" provide us information about why such people might be unwilling to do the job.

The village falls in NA-4 of the National assembly and PK-6 of the provincial assembly constituency. The inhabitants have two main sources of income i.e income from Agriculture and working abroad. Some people are doing jobs with the government some are shopkeepers and businessmen but few. Generally, people avoid providing personal information to government and non-government agencies, due to trust issues as well as due to operations in the war on terror in the region. The same was the case with us. However, being from the same village, we overcome such issues with personal reputation during the collection of information.

3.2 Methodology

The working-age individual will either include into the labour force or will be excluded from the labour force. If a person stays OLF, we have assigned him 1 and 0 otherwise. We adopted binary models because the dependent variable is binary, and we provide further details below. Consider below general model;

$$Y = f(x_1, x_2, \dots, x_n) \quad (1)$$

where Y denotes an OLF decision. If an individual is economically inactive, it is 1; otherwise, it is 0. Economic, geographical, cultural, and social problems can explain such decisions, which we mark as explanatory variables ranging from X1 to Xn. Gender, schooling, family structure (either nucleus or joint), number of children and earners in the family, consumption-income ratio, family assets, and

[14] These committees are mainly based on brotherhood, caste and neighborhood; where the communities support each other in difficult situations like death etc.

challenges they faced such as lack of capital, training, and so on are some of the explanatory variables.

The education is divided into groups. No literacy, Holy Quran recitation (Madrassa), primary or below, middle, SSC, HSSC, bachelor and master's degree/onward master's degree are listed in that order. Twelve-year formal schooling and informal training are directly proportional to LF participation and are the strongest predictor of human capital growth (Riddell & Song, 2011). Early and postgraduate education, on the other hand, increases entrepreneurship greatly (Chernyshenko et al., 2013). We'll calculate the overall impact of education as well.

Female adults are less likely than male adults to consider starting a business. It is caused by socioeconomic and perceptual constraints (Arenius & Minniti, 2005). We have assigned 1 to male to construct a gender dummy variable.

We use a nucleus family structure as a basis for the family system. If a respondent is a member of a joint family, he or she is assigned 1 and 0 otherwise. Both impacts, i.e. free riding and massive dependence, can be seen in large families. We want to see how it reacts to labour force participation in our results. The dependency level (below 15 years aged) will also be regressed on OLF. Because it is suggested that increases in dependency spur activity participation (Bilsborrow, 1987).

Another significant demographic factor influencing labour force participation is age. Young people are very interested in becoming entrepreneurs, but more entrepreneurship is established among older citizens (Lévesque & Minniti, 2006). The choice of staying an employee versus going into business for oneself varies depending on the circumstances. Some people want to work so they can be less stressed, while others are opposed to it. They are risk-takers who depend on their initiative. It is ambiguous and relates to job availability, security, assistance, and perceptual controls (Blanchflower, 2004).

Hurdles to beginning economic operations, such as a lack of resources or skills, are assigned a value of ‘1’, while all other people who are satisfied with their time allocation are given a score of ‘0'.

We also created an asset index (Rehman & Vanin, 2017) that includes family assets including houses, cattle, land, shops, and automobiles. Inhabitants' religiosity is tackled by the denial of interest loans by allotting one, otherwise 0.

3.3 Model Identification

To estimate an econometric model while having a qualitative outcome’s variable, instead of expected variation given the information set probability model is preferable. The linear probability model (LPM) as a simple technique was being used anciently for binary outcomes. It is just the OLS regression in nature.

$$Y_{i=}\ \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} +, \dots, + \beta_k x_{ki} + u_i \qquad (2)$$

$Y_i = 1$; if a person is OLF

$= 0$; otherwise

$X_{j;}$ denotes the j^{th} regressor while $j = 1\ldots k$

Merging the Bernoulli probability range (0 to 1) to equation (2) gives us the linear probability outcomes of the dependent variable. This model has one serious issue, as the information set X_i increases its resultant probability also increases. Due to this Logit and Probit models should be utilised to control the outcome's probability and estimate the non-linear model.[15] In the Logit model, the cumulative logistic distribution assigns to the function as given in equation (3). It has the advantage of mathematical simplicity and flattened graph tails than the probit model. Here odds ratio plays a vital role in linearizing the function both in X_i and parameter to hold the assumption of the classical linear regression model (CLRM).

$$\frac{P_i}{1-P_i} = \frac{1+e^{z_i}}{1+e^{-z_i}} = e^{z_i} \quad [16] \qquad (3)$$

In equation (3) P_i is the probability of an individual out of the labour force, $1 - P_i$ is the probability of labour force participation, 'e' is the exponential logarithm, X_i is the column-vector of explanatory variables and β_i is the row-vector of parameters. Taking the natural logarithm of odds-ratio we obtain equation (4).

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = z_i \qquad (4)$$

Equation (4) is the logistic (Logit) model that fulfils the linearity assumption of CLRM. In the Probit model, we assign a cumulative distribution to the function and have differentiated it from the Logit model adding up a potential index.

$$y_i^* = 1/x_i = \beta_i x_i + \varepsilon_i \qquad (5)$$

In equation (5) Xi and βi are vector matrices, and ε_i is the vector error term with a normally distributed mean equal to zero. There will be minimum critical threshold level for the potential index y_i^*. If Y_i exceeds the y_i^* then the individual will fall in OLF, not otherwise.

$Y_i = 1$; if $y_i^* > 0$ and '0' otherwise.

[15] See Gujarati and Porter 5th edition and Greene, 1993).

[16] Where $z_i = \beta_i X_{i.}$

The above condition can be taken into account given the normality assumption if we assign it the standardized cumulative distribution function as given below in equation (6).

$$P_i = Pr(Y_i = 1) = \left(y_i^* \leq Y_i\right) = F(Y_i) = \int_{-\infty}^{\beta_i x_i} f(z)dz \quad (6)$$

In equation (6) f (z) is the density function, 'z' is the standardized normal distribution function such that [X ~ N (0, 1)] and P_i shows the probability of labour force exclusion. As increasing the information set (X_i) whereas maximizing likelihood, Probit and Logit models will always fall in the probability range being non-linear in dependence association.

The same probit modelling should be used for investigating the association between non-conventional unemployment and hurdles in initiating an enterprise.

4. Results and Discussions

4.1 Descriptive Statistics

The data has been split down into employed, unemployed, and out of the labour force based on gender, age, education, and barriers to examine the adult population non/conventionally. To determine how many are in the Employed labour force (ELF), the unemployed labour force (ULF), or out of the labour force (OLF), and to assess the trend. Furthermore, what is preventing them from starting a new venture?

Table 2 provides conventional and non-conventional measures of ELF, ULF and OLF. Conventional means description per ILO's criteria, while in non-conventional we add up the part of excluded labour force people who are neither searching job nor doing a job but they desire to do their own work. We can see that under the conventional approach 34.22% of the adult population is employed while only 3.74% is unemployed. Hence, LF participation is 37.97% while 62.03% is OLF. Under the non-conventional approach, the unemployed are 31.02% while out of the labour force is 34.76%. We are of the view that almost all working age population must desire to do some income generating activity. But still, we have a large fraction of 34.76 % out of the labour force.

The distribution of employed, unemployed and out of labour force based on gender is demonstrated in **Error! Reference source not found.**. The share of females in the adult population is 45.45 per cent while the remaining 54.55 per cent are male. In the employed fraction of the adult population, the share of male individuals is 92.19 per cent while females contribute 7.81 per cent. There is no share of female individuals in conventional ULF. To compile both ELF and ULF, the activity participation rate is 93.06 per cent exist of males while 6.94 per cent

of the females match part. OLF is 30.34 per cent in male individuals and 69. 57 per cent is female. In a non-conventional approach, the male LF participation increases to 89.22 per cent of its total. Even with the fact that the OLF in female counterparts is reduced from 94.12 per cent to 63.53 per cent. So, it is not necessary that a person not search for a job, if s/he is interesting in earning money. Anyhow, men have a higher rate of starting new businesses than women as pointed out (Fellnhofer et al., 2016) Also, they do work for a very long time but are specific to family assistance, childcare etc which may not countable to GDP. In 2020 World Economic Forum (WEF) ranked Pakistan just 143rd out of 153 countries in educational achievement and 150th out of 153 in Economic contribution and opportunity.[17]

Table 4 and Table 5 are designed to distribute working-age people by age group. The data breakdown represents several measures of the life cycle income concept, such as income, family requirements, status, recruitment qualifications, and other social and cultural norms. According to data, 58.29 per cent of people are between the ages of 15 and 34. The percentage of youth (15-24 years old) is the largest in the respective age categories. Exclusion from the labour force is now at an all-time peak (74.60 per cent in conventional and 43.08 per cent in non-conventional). That is attributed to a lack of expertise and experience. It is observed from the table of conventional distribution that unemployment is nil for people aged 35 and above.

In Table 5, the age group 25-34 has the highest density in ULF, with about 41.30 per cent of the group's overall density. People at this age are more energetic and committed to their plans. Below 35 years data shows that 70.69 per cent of people in start entrepreneurial economic activity direct us their high motivation comparatively to old age inhabitants corresponds to (Levesque & Minniti, 2006). Young males, in particular, must have a strong desire to engage in some kind of income-generating activity. The data shows a monotonic decrease in group-wise OLF other than 65 and above years old people. Old-age citizens, on the other hand, tend not to interfere in economic practices and prefer leisure over labour.

Table 6 and Table 7 show the classification of the adult population based on their educational backgrounds in both conventional and non-conventional ways respectively. Access to education is limited in rural areas. Formal education, identified as matriculation and above, accounts for 32.69 per cent of the total education in our survey. The conventional measures show a positive trend of formal education on labour force participation and consequently an inverse relationship to OLF, with a fall from 50.0 to 9.09 per cent gradually. Table 7 shows how the condition differs in this group. OLF falls from 26.92 to 0.00 per cent as educational qualification rises from metric to 16 years and beyond. We'll concentrate on two points: the first is that the overall share of 16-year-olds with a graduate degree is male-dominated. It demonstrates that if gender discrimination approaches zero while promoting self-organized work, the economy will flourish, and activity participation may be approached 100 per

[17] For detail see http://www3.weforum.org/docs/WEF_GGGR_2020.pdf

cent. Second, if a person has the opportunity to earn, access to higher education is a good predictor of human capital accumulation. According to, education improves personal qualities, which contributes to being a successful entrepreneur (Linan et al., 2011).**Error! Reference source not found.** details the obstacles that the adult population faces in engaging in desired economic activities. Our study's purpose is to investigate entrepreneurial-centric activities everywhere working-age individuals choose to undertake them. On the database, we ordered the obstacles from 0 to 5. Individuals who are satisfied with their time allocation are awarded a value of zero. In the adult population, it had a margin of 53.04 per cent. It is made up of 65% OLF, 33% ELF, and 2% ULF. There are 100 people in total, with 59 females and 41 males. These folks are resistant to changing their time allocation. All of the remaining 46.96 per cents of working-age persons, whether employed or jobless, face certain challenges in pursuing their economic work. In ELF, 48.4 per cent (16.5 per cent of the adult population) are dissatisfied with their job. In ULF, 96.5 per cent of people (29.9 per cent of the adult population) face obstacles while attempting to engage in economic activities. This highlights the non-traditional condition of ULF because these people are unemployed yet want to establish autonomous economic operations. Descriptive statistics provide a road map for attaining concrete and appropriate findings. To explicitly handle explanatory variables, likelihood models should be used. The next section will go into further detail about it.

4.2 Regression Results

Table 9 illustrates the restricted regressors that affect OLF (conventional) while Table 11 for OLF (non-conventional), but its results can not directly be interpreted. We derive marginal effects (derivatives) at means. The marginal effects give instantaneous changes in explanatory variables, allowing us to estimate their probable impact on the dependent variable. Its results only provide a one-way implication on the dependent variable. The results of marginal effects are presented in Table 10 and Table 12.

Table 10 shows the marginal effects of factors that affect OLF (conventional). If the gender is male, the likelihood of a person to drop from OLF (conventional) is 62.6 percentage points in the probit model. Similarly, with the addition of one year to an individual's age, the likelihood of labour force exclusion decreases by 1.1 Per cent. The dependent variable is often inversely affected by formal educational qualifications. A person having a middle school qualification reduces the probability of OLF (conventional) by 43.7 Per cents more than an individual’s having no literacy. If matriculation is used as a measure of schooling, there is a 34.7 percentage points more probability of a decline in OLF (conventional) than the base one. The probability of a decrease in OLF is 38.3, 49.2 and 79.4 percentage points in the 12, 14 and 16 years or above of formal schooling respectively. OLF (conventional) is oppositely affected by the number of earners. If the family’s earners are three it decreases the likelihood of an adult towards OLF (conventional) by 50.7 per cent. If a person is

raised in a family, whose consumption to income share is more than 80%, his or her chances of falling in OLF (conventional) increases by 27.6 per cent. If a person is having hurdles in starting an enterprise, OLF (conventional) is insignificantly related to them, although positively signalled by the risks of 9.0 percentage points. The increase in assets index also increases OLF (conventional) significantly by 28.8 percentage points.

Table 12 shows the marginal effects of factors that affect OLF (non-conventional). If an individual is a male adult, his chances of appearing in OLF (non-conventional) fall by 36.0 percentage points. So, the effect of gender in non-conventional is less intensive than in conventional. It indicates that if a female individual starts income-generating activity at the home level she might face fewer cultural and other barriers than her female counterpart. The high consumption to income ratio is another factor that influences OLF (non-conventional). If an adult accumulates into a family which spent more than 80 per cent income, his or her chances of being in OLF (conventional) increases by 27.6 per cent while in OLF (non-conventional) it increases by 11.3 per cent. Similarly, hurdles like lack of capital, skill, land and market to an individual in starting income generating activity are significantly and inversely related to OLF (non-conventional). If a person is facing hurdles on the non-conventional side, it decreases the likelihood of OLF by 60.9 percentage points. On the other hand, the conventional approach counts this category into OLF. The next Section will explore the hurdles faced by individuals with activity participation, particularly for unemployment.

4.3 Hurdles Facing Unemployed Labour Force (Non-Conventional)

Table 13 determines the impact of hurdles of the unemployed labour force (ULF) non-conventionally estimated through the probit model. The dependent variable is differentiated by extra consideration of those entities who desire self-managing work. The variable of interest is categorical and named hurdles (lack of capital, skill, land, market, or other (if any)). If an individual has the prescribed hurdles in starting income-generating activity; we assign him/her 1 and zero to those individuals who are happy in their work activity. In the first column or model (1) we just estimate the association between dependent and independent variables omitting all other socioeconomic entities. In model (2) we incorporate personal factors i-e gender, age and education as the control group. The parameter estimated shows that having hurdles in starting work given the personal aspects, increases the likelihood of the adult population to shift toward ULF by 70.2 per cent, significantly. Adding up demographic factors (children in family and family system) as control variables in the model (3), the hurdles still significantly and directly corresponds to ULF (non-conventional). The marginal effect (dy/dx) can be interpreted here as the individual facing constraints his/her probability to remain unemployed increases by 70.8 percentage points. The derivative value is showing a higher probability than other models. The number of earners and assets index of a family has been taken as the economic indicators integrated into

the model (4) as well. Being all the control variables till now hurdles significantly increase the probability of individuals being ULF by 60.5 percentage points. To include religiosity such as interest loan denial also in the control group, we estimate the model (5). The 'hurdles' illustrate significant and direct relationships till now. It spurs the likelihood by 60.9 per cent. The value of pseudo R^2 also increases gradually up to 63.5 as the control group has increased from the model (1) to (5). Hence, the impact of hurdles on the unemployed labour force (non-conventional) persistently remains strong positive in the overall table while circulating only in 13 decimal points.

This indicates that non-conventional unemployment persistently depends upon hurdles faced in initiating economic activities. If a person desires to be an independent worker but faces a hurdle in its starting should be a direct and significant association with ULF. No doubt, this class of labour force has a differentiated behaviour in starting work than those who search salary or wage-based work, thus needs an unusual policy orientation.

5. Conclusion and Policy Recommendations

The unemployment rate as well as labour force participation are both sensitive economic indicators. However, per ILO definition a major portion of our labour force land in the category of OLF. To challenge this aspect of the ILO definition, the question arises that why a rational economic agent whose objective is the maximization of income would stay out from earning. Hence, we postulate that a person who neither does a wage-paid job nor search it may not like wage paid job but it is not necessary that he is also not interested in doing any cash work. To analyse whether this is the case or not? For providing an answer to the question based on evidence, primary data has been collected from a village Swegalai, Swat. The questionnaire contains about 80 questions and the survey was completed from March to May 2020. The focus of the survey was the adult population aged 15 years and above. The village was cauterized into 4 informal cooperative committees and randomly picked up 8 to 10 households. The questionnaire was conducted by the head of the household which is mainly consisting of questions about socio-economic and demographic information of the household.

To evaluate data per ILO criteria 3.74 per cent of working-age people are unemployed and 62.03 per cent are excluded from the labour force. While per our criterion, the unemployed labour force is 31.02 per cent which is much higher than conventional. However, out of the labour force is 34.76 per cent of the adult population. The data confirms that non-conventionally 46.96 per cent of working-age people are either employed or unemployed and are facing hurdles (lack of capital, skills etc) while desiring income-generating activity. Out of them, 16.5 per cent are employed and 29.9 per cent are unemployed and face hurdles while trying to start their entrepreneurial work. The result depart from the conventional approach and point out that it underestimates unemployment (Jones & Riddell, 2019; Brandolini & Viviano 2014). There are other socio-economic

and demographic issues due to which this state of adult population land in out of the labour force. Based on regression, it has been found that the gender in both consecutive approaches (conventional and non-conventional) is inversely and significantly allied to OLF. This conveys the message that the female population is less participated in economic activities (Hafeez & Ahmad, 2002; Fellnhofer et al., 2016). Furthermore, age, education particularly higher education, number of earners, high consumption-income ratio (here if more than 80 per cent) and asset index are associated with OLF (conventional) significantly. The association of asset index and high consumption to income share is directly linked to it, while the remaining factors are inversely related to OLF (conventional). In the conventional approach, education is a prominent indicator for OLF. At least middle (8 years) education and onward showing inverse and statistically significant affiliation to OLF comparatively to primary education. This proves that the education system has a good well to enhance human capital accumulation (Hafeez & Ahmad, 2002; Linan et al., 2011).

In the non-conventional approach, only gender and hurdles are inverse and significant factors to OLF (Fellnhofer et al., 2016; Levesque & Minniti, 2006). As in gender parity in economic activity participation Pakistan has been ranked 150th out of 153 countries.[18] It also demonstrates that if an individual land in OLF conventional not because s/he is happy with his time allocation but due to some hurdles facing (like lack of capital, land, training, marketing and others) while desiring his enterprise (micro-enterprise like livestock, agro-inputs, retail lodge, a small hut, cart etc) to maximize his utility. Then it is not rational behaviour to put him in OLF. Everyone must allocate more time in his own expertise (Becker, 1965).

The ILO's criteria for measuring unemployment are strict for developing nations, particularly in rural regions as they exclude a two-thirds portion of the working-age population from activity participation. it is suggested that ILO and academia should formulate the relax standards from traditional unemployment measuring, where the desire for both HFP and EFP, even if it is informal, is countable. It is recommended to construct such policies taking suitable local consideration of demographic dividends into account. Additionally, to increase opportunity by removing barriers such as a lack of resources (land, capital, skills), and to support women's empowerment and education. It will be a step toward increased income creation, which might result in community wellbeing.

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[18] See World Economic Forum's Global Gender Gap report, 2020.

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Appendix-I

Table 1: Comparison of Adult Population and Labour Force (millions and % Share in Total)

Province	(2007-08)			
	Adult Population		Labour Force	
	millions	Per cent Share	millions	Per cent Share
KPK	12.5	13.4	5.9	12.0
Punjab	54.2	58.2	29.2	59.8
Sindh	22.4	24.1	11.7	23.9
Baluchistan	4.0	4.2	2.0	4.0
Total	**93.1**	**100**	**48.8**	**100**
	(2017-18)			
KPK	17.6	14.4	7.5	11.8
Punjab	70.0	57.3	38.6	60.9
Sindh	29.5	24.1	14.7	23.2
Baluchistan	5.1	4.1	2.5	3.9
Total	**122.2**	**100**	**63.4**	**100**

Source: PBS, Pakistan Labour Force Survey (authors-calculated)

Table 2: Measurement of Employed, Unemployed and Out of the Labour Force both by Conventional and Non-Conventional Approach

	Conventional				
Title	**ELF**	**ULF**	**LF=(1)+(2)**	**OLF**	**AP= (3)+(4)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Absolute	64	7	71	116	187
Per centage	34.22	3.74	37.97	62.03	100
	Non-Conventional				
Absolute	64	58	122	65	187
Per centage	34.22	31. 02	65.24	34.76	100

Note: Where LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF.

Table 3: Distribution of Employed, Unemployed and Out of Labour Force Gender-Wise (Non/Conventional)

Gender	ELF	ULF	LF=(1)+(2)	OLF	Total = (3)+(4)
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Conventional					
Male	**59**	**8**	**67**	**35**	**102**
	(57.84)	(07.84)	(65.69)	(34.31)	
	[92.19]	[100.0]	[93.06]	[30.34]	[54.55]
Female	**5**	**0**	**5**	**80**	**85**
	(5.88)	(0.00)	(5.88)	(94.12)	
	[7.81]	[0.00]	[6.94]	[69.57]	[45.45]
Total	**64**	**8**	**72**	**115**	**187**
	(34.22)	(4.22)	(38.44)	(61.56)	
Non-Conventional					
Male	**59**	**32**	**91**	**11**	**102**
	(57.84)	(31.37)	(89.22)	(10.78)	
	[92.19]	[55.17]	[74.59]	[16.92]	[54.55]
Female	**5**	**26**	**31**	**54**	**85**
	(5.88)	(30.59)	(36.47)	(63.53)	
	[7.81]	[44.83]	[25.41]	[83.08]	[45.45]
Total	**64**	**58**	**122**	**65**	**187**
	(34.22)	(31.02)	(65.24)	(34.76)	

Note: Where LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.

Table 4: Distribution of Employed, Unemployed and Out of Labour Force by Age-Group (Conventional)

	Conventional				
Age	**ELF**	**ULF**	**LF=(1)+(2)**	**OLF**	**Total = (3)+(4)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
15-24	**13**	**3**	**16**	**47**	**63**
	(20.63)	(4.76)	(25.40)	(74.60)	
	[20.31]	[42.86]	[22.54]	[40.52]	[33.69]
25-34	**19**	**4**	**23**	**23**	**46**
	(41.30)	(8.70)	(50.00)	(50.00)	
	[29.69]	[57.14]	[32.39]	[19.83]	[24.60]
35-44	**13**	**0**	**13**	**16**	**29**
	(44.83)	(0.00)	(44.83)	(55.17)	
	[20.31]	[0.00]	[18.31]	[13.79]	[15.51]
45-54	**11**	**0**	**11**	**15**	**26**
	(42.31)	(0.00)	(42.31)	(57.69)	
	[17.19]	[0.00]	[15.49]	[12.93]	[13.90]
55-64	**7**	**0**	**7**	**6**	**13**
	(53.85)	(0.00)	(53.85)	(46.15)	
	[10.94]	[0.00]	[9.86]	[5.17]	[6.95]
65 and onward	**1**	**0**	**1**	**9**	**10**
	(10.00)	(0.00)	(10.00)	(90.00)	
	[1.56]	[0.00]	[1.41]	[7.76]	[5.35]
Total	**64**	**7**	**71**	**116**	**187**
	(34.22)	(3.74)	(37.97)	(62.03)	

Note: Where LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.

Table 5: Distribution of Employed, Unemployed and Out of Labour Force by Age-Group (Non-Conventional)

Non-Conventional					
Age	**ELF**	**ULF**	**LF=(1)+(2)**	**OLF**	**Total = (3)+(4)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
15-24	**13**	**22**	**35**	**28**	**63**
	(20.63)	(34.92)	(55.56)	(44.44)	
	[20.31]	[37.93]	[29.27]	[43.08]	[33.69]
25-34	**19**	**19**	**38**	**8**	**46**
	(41.30)	(41.30)	(82.61)	(17.39)	
	[29.69]	[32.76]	[30.89]	[12.31]	[24.60]
35-44	**13**	**6**	**19**	**10**	**29**
	(44.83)	(20.69)	(65.52)	(34.48)	
	[20.31]	[10.34]	[15.45]	[15.38]	[15.51]
45-54	**11**	**6**	**17**	**9**	**26**
	(42.31)	(23.08)	(65.38)	(23.08)	
	[17.19]	[10.34]	[13.82]	[13.85]	[13.90]
55-64	**7**	**3**	**10**	**3**	**13**
	(53.85)	(23.08)	(76.92)	(23.08)	
	[10.94]	[5.17]	[8.13]	[4.62]	[6.95]
65 and onward	**1**	**2**	**3**	**7**	**10**
	(10.00)	(20.00)	(30.00)	(70.00)	
	[1.56]	[3.45]	[2.44]	[10.77]	[5.35]
Total	**64**	**58**	**122**	**65**	**187**
	(34.22)	(31.02)	(65.24)	(34.76)	

Note: Where LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.

Table 6: Distribution of Employed, Unemployed and Out of Labour Force by Education (Conventional)

	Conventional				
Education	**ELF**	**ULF**	**LF=(1)+(2)**	**OLF**	**Total = (3)+(4)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
No literacy	**7**	**0**	**7**	**35**	**42**
	(16.67)	(0.00)	(16.67)	(83.33)	
	[10.94]	[0.00]	[9.86]	[30.17]	[22.46]
Only recites H. Quran	**2**	**0**	**2**	**21**	**23**
	(8.70)	(0.00)	(8.70)	(91.30)	
	[3.13]	[0.00]	[2.82]	[18.10]	[12.30]
Up to Primary	**9**	**0**	**9**	**27**	**36**
	(25.00)	(0.00)	(25.00)	(75.00)	
	[14.06]	[0.00]	[12.68]	[23.28]	[19.25]
Middle	**15**	**0**	**15**	**8**	**23**
	(65.22)	(0.00)	(65.22)	(34.78)	
	[23.44]	[0.00]	[21.13]	[6.90]	[12.30]
Matric	**11**	**2**	**13**	**13**	**26**
	(42.31)	(7.69)	(50.00)	(50.00)	
	[17.19]	[28.57]	[18.31]	[11.21]	[13.90]
Intermediate	**10**	**0**	**10**	**8**	**18**
	(55.56)	(0.00)	(55.56)	(44.44)	
	[15.63]	[0.00]	[14.08]	[6.90]	[9.63]
14 years	**5**	**0**	**5**	**3**	**8**
	(62.50)	(0.00)	(62.50)	(37.50)	
	[7.81]	[0.00]	[7.04]	[2.59]	[4.28]
16 years and above	**5**	**5**	**10**	**1**	**11**
	(45.45)	(45.45)	(90.91)	(9.09)	
	[7.81]	[71.43]	[14.08]	[0.86]	[5.88]
Total	**64**	**7**	**71**	**116**	**187**
	(34.22)	(3.74)	(37.97)	(62.03)	

Note: Where AP is adult population, conventional means that the indicators should hold ILO's criteria (the work which is countable to GDP or job seeking in the referenced period), LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stand for OLF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.

Table 7: Distribution of Employed, Unemployed and Out of Labour Force by Education (Non-Conventional)

Education	Non-Conventional				
	ELF	ULF	LF=(1)+(2)	OLF	Total = (3)+(4)
	(1)	(2)	(3)	(4)	(5)
No literacy	**7**	**14**	**21**	**21**	**42**
	(16.67)	(33.33)	(50.00)	(50.00)	
	[10.94]	[24.14]	[17.21]	[32.31]	[22.46]
Only recites H. Quran	**2**	**7**	**9**	**14**	**23**
	(8.70)	(30.43)	(39.13)	(60.87)	
	[3.13]	[12.07]	[7.38]	[21.54]	[12.30]
Up to Primary	**9**	**12**	**21**	**15**	**36**
	(25.00)	(33.33)	(58.33)	(41.67)	
	[14.06]	[20.69]	[17.21]	[23.08]	[19.25]
Middle	**15**	**5**	**20**	**3**	**23**
	(65.22)	(21.74)	(86.96)	(13.04)	
	[23.44]	[8.62]	[16.39]	[4.62]	[12.30]
Matric	**11**	**8**	**19**	**7**	**26**
	(42.31)	(30.77)	(73.08)	(26.92)	
	[17.19]	[13.79]	[15.57]	[10.77]	[13.90]
Intermediate	**10**	**4**	**14**	**4**	**18**
	(55.56)	(22.22)	(77.78)	(22.22)	
	[15.63]	[6.90]	[11.48]	[6.15]	[9.63]
14 years	**5**	**2**	**7**	**1**	**8**
	(62.50)	(25.00)	(87.50)	(12.50)	
	[7.81]	[3.45]	[5.74]	[1.54]	[4.28]
16 years and above	**5**	**6**	**11**	**0**	**11**
	(45.45)	(54.55)	(100.0)	(0.00)	
	[7.81]	[10.34]	[9.02]	[0.00]	[5.88]
Total	**64**	**58**	**122**	**65**	**187**
	(34.22)	(31.02)	(65.24)	(34.76)	

Note: *Where AP indicates adult population, LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.*

Table 8: Labour Force and out of Labour Force Adults (Non-conventional) who are facing Hurdles in Starting Income Generating Activities

Group	Description	ELF (1)	ULF (2)	LF=(1) (3)	OLF (4)	Freq.=(3)+(4) (5)
0	*No hurdles or they are happy with their time allocation*	**33**	**2**	**35**	**65**	**100**
		(33.00)	(2.00)	(35.00)	(65.00)	[53.04]
		[51.56]	[3.45]	[28.69]	[100.0]	
1	*Lack of capital*	**29**	**48**	**77**	**0**	**77**
		(37.60)	(62.33)	(100.0)	(0.00)	[41.17]
		[45.31]	[82.76]	[63.11]	[0.00]	
2	*Lack of Skills*	**0**	**1**	**1**	**0**	**1**
		(0.00)	(100.0)	(100.0)	(0.00)	[0.53]
		[0.00]	[1.72]	[0.82]	[0.00]	
3	*Land requires*	**2**	**1**	**3**	**0**	**3**
		(66.67)	(33.33)	(100.0)	(0.00)	[1.60]
		[3.13]	[1.72]	[2.46]	[0.00]	
4	*Market non-availability*	**0**	**0**	**0**	**0**	**0**
		(0.00)	(0.00)	(0.00)	(0.00)	[0.00]
		[0.00]	[0.00]	[0.00]	[0.00]	
5	*Other*	**0**	**6**	**6**	**0**	**6**
		(0.00)	(100.0)	(100.0)	(0.00)	[3.21]
		[0.00]	[10.34]	[4.92]	[0.00]	
Total		**64**	**58**	**122**	**65**	**187**
		(34.22)	(31.02)	(65.24)	(34.76)	

Note: Where LF represents Labour Force, ELF indicates Employed LF, ULF denotes Unemployed LF and OLF stands for Out-of- LF. The values in parenthesis are percentages row-wise while in brackets are percentages column-wise.

Appendix-II

Table 9: Estimates of Restricted Probability Models for Out of the Labour Force Adult population (Conventional)

OLF (Conventional)	Description	(1) LPM	(2) Logit	(3) Probit
Gender	*If male=land zero otherwise*	-0.485***	-3.501***	-1.942***
		(0.082)	(0.819)	(0.391)
Age	*Individuals' age*	-0.007***	-0.057***	-0.034***
		(0.002)	(0.019)	(0.01)
0b.Education	*No literacy, taken as base*	0	0	0
1.Education	*A person can Recites Nobel Quran*	-0.118	-0.96	-0.494
		(0.08)	(1.197)	(0.575)
2.Education	*If Education level Primary*	-0.114	-0.799	-0.502
		(0.096)	(0.921)	(0.506)
3.Education	*If Education level middle*	-0.317***	-2.362**	-1.354***
		(0.111)	(0.931)	(0.502)
4.Education	*If Education level matric*	-0.221*	-1.891**	-1.077**
		(0.125)	(0.946)	(0.514)
5.Education	*If Education level F.A/Sc*	-0.252*	-1.974*	-1.188**
		(0.145)	(1.124)	(0.598)
6.Education	*If Education level B.A/Sc*	-0.352*	-2.617**	-1.527**
		(0.188)	(1.154)	(0.651)
7.Education	*If Education level 16 and above*	-0.574***	-4.201***	-2.463***
		(0.141)	(1.354)	(0.723)
3.No. of earners	*Total No. of earners in family=3*	-0.29**	-2.613**	-1.488***
		(0.119)	(1.171)	(0.562)
Hurdles	*If a hurdle in starting work exists=1; 0 otherwise*	0.074	0.541	0.279
		(0.058)	(0.51)	(0.28)
High C-I	*Family consumption-income share is 80% and above=1, zero otherwise*	0.17***	1.375***	0.857***
		(0.058)	(0.451)	(0.254)
Assets-index	*Sum of assets divided by no. of assets*	0.165*	1.532**	0.894**
		(0.09)	(0.702)	(0.399)
Constant		1.063***	4.315***	2.398***
		(0.134)	(1.279)	(0.685)
Observations		187	187	187
R-squared		0.48	.	.
Pseudo R^2		.	0.45	0.46

*Note: The dependent variable OLF holds a value of 1 if the individual is excluded from the labour force and zero otherwise. Standard errors in parentheses are robust while significance indicated by number of star consigned to it as; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.*

Table 10: Marginal Effects (Derivatives) at means for Out of the Labour Force (conventional)

OLF Conventional	Description	(1) Logit (dy/dx)	(2) Probit (dy/dx)
Gender	*If male =1and zero otherwise*	-0.621	-0.626
Age	*Individuals' age*	-0.010	-0.011
0b.Education	*No literacy*	0	0
1.Education	*Recites Nobel Quran*	-0.170	-0.159
2.Education	*If Education level primary=1, zero otherwise*	-0.142	-0.162
3.Education	*If Education level middle=1, zero otherwise*	-0.419	-0.437
4.Education	*If Education level matric=1, zero otherwise*	-0.335	-0.347
5.Education	*If Education level F.A/Sc=1, zero otherwise*	-0.350	-0.383
6.Education	*If Education level B.A/Sc=1, zero otherwise*	-0.464	-0.492
7.Education	*If Education level 16 and above=1, zero otherwise*	-0.745	-0.794
3.TF_Earners	*Total No. of earners in family=3*	-0.501	-0.507
Hurdles	*If a hurdle in starting work exists=1, 0 otherwise*	0.096	0.090
High CI	*Family consumption-income share is 80% and above=1, zero otherwise*	0.244	0.276
Assets Index	*Sum of assets divided by no. of assets*	0.272	0.288
Observations		187	187

Note: The dependent variable OLF (conventional) holds a value of 1 if the individual is excluded from the labour force and zero otherwise. The marginal effects (dy/dx) derived at-means.

Table 11: Estimates of Restricted Probability Models for Out of the Labour Force Adult Population (Non-Conventional)

OLF (non-conventional)	Description	(1) LPM	(2) Logit	(3) Probit
Gender	*If male =land zero otherwise*	-0.371***	-3.468***	-1.992***
		(0.054)	(0.633)	0.329
High CI	*Family consumption to income share is 80% and above=1, zero otherwise*	0.093**	1.216*	0.627*
		(0.045)	(0.621)	0.328
Hurdles	*If a hurdle in starting work exists=1; 0 otherwise*	-0.538***	-6.092***	-3.373***
		(0.051)	(1.104)	0.51
Assets Index	*Sum of assets divided by no. of assets*	-0.011	-0.234	-0.208
		(0.073)	(0.889)	0.461
Constant		0.767***	-0.234	1.264***
		(0.061)	(0.889)	0.363
Observations		187	187	187
R-squared		0.598	.	.
Pseudo R^2		.	0.645	0.645

*Note: The dependent variable OLF (non-conventional) holds a value of 1 if the individual is excluded from the labour force and zero otherwise. Standard errors in parentheses are robust while significance indicated by number of star consigned to it as; * p < 0.1, ** p < 0.05, *** p < 0.01*

Table 12: Marginal Effects at means for Out of Labour Force (Non-conventional)

OLF (non-conventional)	Description	(1) Logit (dy/dx)	(2) Probit (dy/dx)
Gender	*If male =land zero otherwise*	-0.299	-0.360
High CI	*The family's consumption to income share is 80% and above=1, zero otherwise*	0.105	0.113
Hurdles	*If a hurdle in starting work exists=1; 0 otherwise*	-0.525	-0.609
Assets index	*Sum of assets divided by no. of assets*	-0.020	-0.038
Observations		187	187

Note: The dependent variable OLF (non-conventional) holds a value of 1 if the individual is excluded from the labour force and zero otherwise. The marginal effects (dy/dx) are derived at means.

Table 13: The Impact of Hurdles on Unemployed Labour Force (Non-conventionally Measured)

Unemployed Labour Force (Non-conventional)					
Variables	(1) ULF	(2) ULF	(3) ULF	(4) ULF	(5) ULF
Hurdles	2.398*** (0.321)	3.238*** (0.498)	3.821*** (0.567)	4.51*** (0.639)	4.675*** (0.654)
Constant	-2.05*** (0.29)	-0.753 (0.465)	-1.877** (0.739)	-2.47** (1.111)	-2.428** (1.122)
Marginal Effects (dy/dx) at-means	0.626	0.702	0.708	0.605	0.629
Personal factors	*No*	**Yes**	**Yes**	**Yes**	**Yes**
Demographic factors	*No*	**Yes**	**Yes**	**Yes**	
	No				
Economic factors	*No*	*No*	*No*	**Yes**	**Yes**
Religious factor	*No*	*No*	*No*	*No*	**Yes**
Observations	187	187	187	187	187
***Pseudo* R^2**	0.417	0.506	0.572	0.634	0.635

*Note: The dependent variable ULF holds a value of 1 if the individual is unemployed labour force (non-conventional) and zero otherwise. We estimate the marginal effect at means. Standard errors in parentheses are robust while significance indicated by number of star consigned to it as; * if p-value < 0.1, ** < 0.05 and *** < 0.01*