Determinants of Moonlighting among Male Poultry Workers in Hooghly District of West Bengal

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[Abstract]

This paper examines the factors influencing the decision to participate in moonlighting activities by poultry workers in Hooghly District. By estimating a binary logit model using cross section of 150 observations, this study reveals the fact that '*hours constraint*' and '*income constraint*' are the proximate determining factors of moonlighting by poultry workers.

Key Words: *Moonlighting, Hours Constraint, Income Constraint, Binary Logit Model*

I

Introduction

Simultaneous employment in multiple (more than one) jobs is termed as moonlighting in the economics literature since before the beginning of contemporary industrial economies, the multiple jobholders usually performed their additional jobs at night (Paula (2007)). Presently, multiple jobholders or moonlighters generally perform their moonlighting activities at any time in a day due to initiation of flexible working conditions. Prevalence of moonlighting become more common as contemporary modern economies adopt more flexible working conditions (Baines and Newell (2004), Combos, McKay and Wright (2007)). The welcoming feature of moonlighting lies in its role of a facilitator of skill accumulation (Dickey, Watson and Zangelidis (2009), Panos, Pouliakas and Zangelidis (2011)), while it cannot be greeted due to its disappointing role of forming shadow economy (Frey and Schneider (2000), Schneider (2010), Barth and Ognedal (2005)).

Several factors have been identified in various studies as determinants of moonlighting. The most important one is the 'hours constraint'. Workers are utility maximiser against time and income/wage constraint. With a given wage rate, if a person cannot supply optimal 'hours of work' in the primary job at the utility maximizing level, the worker becomes 'hours constrained'. An hours constrained worker will try to spend 'unutilized' hours into some additional job/jobs if the wage offered in the additional job lie between the reservation wage and the wage rate of primary job. The studies of Shisko and Rostker (1976), O'Connell (1979), Krishnan (1990), Combos, McKay and Wright (2007), Dickey and Theodossiou (2004), Livanos and Zangelidis (2008) and Wu, Baimbridge and Zu (2008) support hours constraint as a proximate cause for moonlighting. In addition to 'hours constraint', Conway and Kimmel (1998) have identified the job heterogeneity motive for moonlighting and the study of Heineck and Schwarze (2004) has supported both motives of moonlighting. In addition to the constraint and job heterogeneity motives, Abdukadir (1992) has identified liquidity constraint, Paxson and Sicherman (1996) have considered moonlighting as portfolio selection between jobs and Boheim and Taylor (2004) studied moonlighting as a response to negative financial shocks and heightened primary job insecurity. Bell, Hart and Wright (1997) studied moonlighting as a hedging behavior against fear of termination of primary job. The study of Friesen (2001) ensures that overtime pay regulation may instigate moonlighting.

Poultry farming is a form of animal husbandry in which different types of domesticated birds, especially chickens, are commercially produced for eggs and meat. Poultry workers are employees in poultry farms who are specialists in supporting bird development process. Although the dominant economic activity in Hooghly district is agriculture, industrial activities are prominent on the bank of Hooghly River. Majority of poultry farms are concentrated in the eastern part of the district, though can be traceable throughout the district. As per our primary survey, a considerable percentage of poultry workers reported that they are underpaid and opt for subsidiary activities for livelihood. Some managers and supervisors of poultry farms, who are well salaried, also choose to moonlight.

This paper is intended to find out the role of 'hours constraint', 'income constraint' and other demographic factors responsible for moonlighting decision among poultry workers in Hooghly district of West Bengal by estimating a binary logit model.

II

Methodology

To find out the determining factors of moonlighting among poultry workers in Hooghly District, we have to estimate the following binary logit model.

$$MOON_i = \beta_0 + \beta_1 FAMZ_i + \beta_2 AGE_i + \beta_3 LEVEDU_i + \beta_4 lnINC_i + \beta_5 BANK_i$$
$$+\beta_6 HCONST_i + u_i \qquad (1)$$

Where

$$MOON_i = \begin{cases} 1 \text{ if the } i\text{th poultry worker moonlights} \\ 0 \text{ otherwise} \end{cases}$$

$FAMZ_i = $ Family size of the ith poultry worker

$LEVEDU_i = $ Educational qualification of the ith poultry worker, measured in years of schooling

$$BANK_i = \begin{cases} 1 \text{ if the ith poultry worker has at least one bank account} \\ 0 \text{ otherwise} \end{cases}$$

$AGE_i = $ Age of the ith poultry worker, measured in years

$$HCONST_i = \begin{cases} 1 \text{ if the } i\text{th poultry worker is hours constrained} \\ 0 \text{ otherwise} \end{cases}$$

$INC_i = $ Monthly family income of the ith poultry worker. In tradition with Naderi (2003), we consider logarithm of income (ln_INC).

III

Data, Empirical Results and Discussion

For empirical analysis of determinants of moonlighting among poultry owners in Hooghly District of West Bengal, we have surveyed 150 poultry workers using random sampling method. Among them, 86 reported to have moonlighting jobs in addition to their primary job. Table -1 presents the percentage distribution of categorical variables in our sample. This table confirms that only 30 percent male poultry worker lacks a bank account which is indication for satisfactory financial inclusion. This table also confirms that 73 percent male poultry worker faces hours constraint.

Table - 1: Percentage distribution of Categorical Variables

Variables	Percentage of Sample Values	
	0	1
MOON	43	57
INS	30	70
HCONST	27	73

Source: Author's own calculation based on primary data

Table – 2 provides the summary statistics of quantitative variables. From this table it is clear that largest family in our sample contains 17 family members, a reality of undivided Hindu family in rural Bengal. The average family size is five and the family size with lowest member is two. Maximum family income is Rs. 98000 per month while minimum family income is Rs. 12000 per month. Average family income is Rs. 30671 per month. Average age of poultry workers is 42 years, varies from 25 to 57 years. Educational qualification in our sample varies from 5th grade to graduation with an average of 7.63 years approximately.

Table. 2: Summary Statistics of Quantitative Variables

	FAMZ	INC	AGE	LEVEDU
Mean	4.9	30671.67	42.52	7.63
Median	5	21600.00	42	8.00
Maximum	17	98000.00	57	14.00
Minimum	2	12000.00	25	5.00
Std. Dev.	2.107035	19419.33	7.312507	1.981175
Skewness	2.995789	1.908656	-0.185169	0.588602
Kurtosis	16.29634	5.925192	2.482481	2.736353
Observations	150	150	150	150

Source: Author's own calculation based on primary data

The binary logit regression output is presented in Table – 3. This table reveals the fact that in addition to the '*hours constraint*' and family size, decision to moonlight by male poultry workers in Hooghly district of West Bengal is influenced by family income and the level of education.

To evaluate the role of hours constraint in shaping moonlighting decision, we asked each respondent whether they can supply as much labour-hour as they desire in the poultry or not. Out of 150 respondents, 110 answered that they are hours-constrained. The result of the logit regression reveals that hours constraint is the most important reason behind moonlighting decision. The studies of Shishko andn Rostker (1976), Conway and Kimmell (1998), Boheim and Taylor (2004), Dickey and Theodossiou (2004) and Livanos and Zangelidis (2008) support hours constraint motive of moonlighting. The coefficient of HCONST is 2.86173, the change in odds

ratio indicates that there will be increase in moonlighting to the extent of (exp (2.86173)-1) *100=164 percent for a person with hours constraint.

The coefficient of FAMZ is −0.257425 and we can reject the null hypothesis that $\beta_1 = 0$ at 2.9 percent level of significance. The negative sign advocates for an inverse relationship with family size and moonlighting, i.e., increased family members act to reduce moonlighting probability. Unit increase in the family size decreases the log of odds in favour of moonlighting by about 0.257 and odds ratio in favour of moonlighting is (exp(−0.257425)-1)*100 = 32.7 percent.

Age, as a proxy of experience, is a significant determinant of moonlighting decision. Studies of Naderi (2000), Combos, McKay and Wright (2007), Livanos and Zangelidis (2008), Hyder and Ahmed (2011) approve the significance of age as an important determinant of moonlighting while in the study of Foley (1997), age appeared as insignificant determinant like ours.

The studies of Naderi (2003), Wu, Baimbridge and Zu(2008), Tansel (1995) and Dickey and Theodossiou (2004) have supported some important effect of the level education on moonlighting decision while Foley (1997), Hyder and Ahmed (2011) did not find any such result. Our results suggest that educational qualification have an important influence upon moonlighting decision of poultry workers in Hooghly district of West Bengal. The coefficient of LEVEDU is −0.272899 and we can reject the null hypothesis that $\beta_3 = 0$ at 1.8 percent level of significance. The negative sign confirms the inverse relationship of educational qualification and moonlighting, i.e., increased years of schooling will reduce moonlighting probability. Unit increase in the level of education decreases the log of odds in favour of moonlighting by about 0.272 and odds ratio against moonlighting is (exp(−0.272899)-1)*100 = 24 percent.

The holding of a bank account is considered as a measure of financial inclusion and is expected to affect moonlighting decision but our result suggests that holding bank account is irrelevant for moonlighting decision of poultry workers in Hooghly district.

The effect of family income on additional work is expected to be negative for a worker since increase in income will increase the demand for leisure. The coefficient of LN_INC is −2.92097

Table 3: Regression Output

Model 1: Logit, using observations 1-150
Dependent variable: MOON
Standard errors based on Hessian

	Coefficient	Std. Error	z	p-value
const	31.3846	6.58059	4.769	<0.0001
FAMZ	−0.257425	0.117990	−2.182	0.0291
AGE	−0.00346271	0.0333225	−0.1039	0.9172
LEVEDU	−0.272899	0.115905	−2.355	0.0185
BANK	−0.0943661	0.505361	−0.1867	0.8519
HCONST	2.86173	0.621509	4.604	<0.0001
LN_INC	−2.92097	0.639897	−4.565	<0.0001
Mean dependent var	0.573333	S.D. dependent var		0.496250
McFadden R-squared	0.420149	Adjusted R-squared		0.351758
Log-likelihood	−59.34942	Akaike criterion		132.6988
Schwarz criterion	153.7733	Hannan-Quinn		141.2607

Number of cases 'correctly predicted' = 127 (84.7%)
f(beta'x) at mean of independent vars = 0.496
Likelihood ratio test: Chi-square(6) = 86.007 [0.0000]

Source: Author's own calculation based on primary data

Table. 4: Marginal Effects (Evaluated at mean)

Variable	Marginal Effect
FAMZ	−0.0637682
AGE	−0.000857766
LEVEDU	−0.0676013
BANK	−0.0234118
HCONST	0.592762
LN_INC	−0.723568

Source: Author's own calculation based on primary data

Table – 5: Variance Inflation Factors

Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem

Variable	VIF
FAMZ	1.055
AGE	1.047
LEVEDU	1.029
BANK	1.042
HCONST	1.196
LN_INC	1.193

Source: Author's own calculation based on primary data

and we can reject the null hypothesis that $\beta_4 = 0$ at less than one percent level of significance. The negative sign authorizes the inverse relationship between income and moonlighting, i.e., increased income will reduce moonlighting probability. Therefore, income constraint plays an important role in determining moonlighting among poultry workers in Hooghly district of West Bengal.

Therefore, the most important determinants of moonlighting decision by male poultry workers in Hooghly District are the hours and income constraints. In addition to constraint motives, family size and level of education significantly affect moonlighting among poultry workers in Hooghly District. Table 5 confirms that our model is free from multicollinearity.

IV

Conclusion

With a given wage rate, if a worker is constrained to supply optimal 'hours of work' in the main job at the utility maximizing level, the worker will spend 'unutilized' hours into some moonlighting job/jobs provided the wage offered in the moonlighting job lie between the reservation wage and the wage rate of primary job. Inability to supply as much work-hour as a worker wishes in his utility maximizing level is called hours constraint. Inability to earn enough income is called income constraint. This paper is entrusted to uncover the efficacy of hours constraint and income constraint as influencing factors on decision to moonlight by poultry workers in Hooghly District. By estimating a binary logit model using cross section of 150 observations, this study reveals the fact that in addition to 'hours constraint' and 'income constraint', family size and the level of education significantly affect moonlighting among poultry workers in Hooghly District.

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