Global Journal of Management and Business Research
Volume 12 Issue 2 Version 1.0 February 2012
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Individual Worth vs. Aggregate Value: Influential Factors of Non-Market Works (Nmws) In Bangladesh

By Dr. Md. Aoulad Hosen
National University, Gazipur,Bangladesh

Abstract - The national accounts appear to be saying that the NMWs are worth nothing; but, in reality, the NMWs increase the value of purchased goods and services and contribute to the formation and development of human resources. Abdel, et al. (1969), Chadeau, (1992), Hamdad, (2003), Charmes, (2006) put their effort to evaluate the NMWs for their respective countries by introducing satellite account and finally comparing with the national account. Although the processes of evaluation of the NMWs are difficult task, here two methods, such as works method and opportunity cost method, have been incorporated to evaluate the NMWs in Bangladesh. To know individual worth to producing NMWs and to discover the method of estimation of the NMWs, this study presents the idea of our economy which is always undermined by the conventional market framework. This study is principally based on primary data and case studies. To know the contribution of different groups of people who produce NMWs, this research concentrates on aggregate output of the value of NMWs.

GJMBR Classification : *FOR Code: 140212,140213, JEL Code: E25*

Strictly as per the compliance and regulations of:

Individual Worth vs. Aggregate Value: Influential Factors of Non-Market Works (Nmws) In Bangladesh

Dr. Md. Aoulad Hosen

Abstract - The national accounts appear to be saying that the NMWs are worth nothing; but, in reality, the NMWs increase the value of purchased goods and services and contribute to the formation and development of human resources. Abdel, et al. (1969), Chadeau, (1992), Hamdad, (2003), Charmes, (2006) put their effort to evaluate the NMWs for their respective countries by introducing satellite account and finally comparing with the national account. Although the processes of evaluation of the NMWs are difficult task, here two methods, such as works method and opportunity cost method, have been incorporated to evaluate the NMWs in Bangladesh. To know individual worth to producing NMWs and to discover the method of estimation of the NMWs, this study presents the idea of our economy which is always undermined by the conventional market framework. This study is principally based on primary data and case studies. To know the contribution of different groups of people who produce NMWs, this research concentrates on aggregate output of the value of NMWs. This study find that earning member, total hours of NMWs, estimated total support and employment status were the significant determinant to evaluate the aggregate value of NMWs. Two models were considered based on two methods of estimation. Both of the models signify the said independent variables. By taking rational figures (available information on field research) against the independent variables, this research uncover that tk.2,714 person/per month and tk. 2,317 person/month were produced by works method and opportunity cost method respectively.

I. Introduction

Regular market framework is capable of evaluating the value of the formal economy; but it failed to appraise the value of NMWs. Some works such as collecting water, cleaning and taking care of house, washing clothes, washing dishes, cooking and serving meals, taking care of children, taking care of the sick and the elderly, crop gleaning, collecting and making cow-dung cakes and sticks, etc. which produce significant values can not be evaluated by the conventional market structure. These types of works can be mentioned as non- market works (NMWs) in.

This paper primarily approaches the NMWs involving unpaid labor. In this area, data generated by Bangladesh Bureau of Statistics (BBS), have mainly focused on the household activities. In the revised estimates of the period between 1989-90 and 1998-99 by the National Accounts Statistics of Bangladesh, the data were collected from different sector and sub-sector following the methodology of SNA-93 framework. According to the international definition adopted in 1993, the non-market sector or the informal sector is a sub-sector of the household institutional sector in the SNA, and the Non Profit Institutions Serving Households (NPISH) cannot include economic units of the informal sector. But, all the production of the household sector cannot be imputed to the informal sector. The two types of non-market production are ignored by SNA. The first type is non-SNA work providing unpaid services for own final use. Work providing unpaid domestic services for own final use within household include cleaning, decoration, maintenance of dwelling occupied by the household, preparation and serving of meals, transportation of members of the household and care-giving services to household members (care, training and instruction of children; care of the sick, infant or old). The second NMW is non-SNA work providing unpaid domestic services, care giving services and volunteer services to other households or communities. Here researchers deliberately exclude NMWs outside SNA. The 1993 definition of the informal sector is based on the characteristics of the economic unit in which the person is working.

II. The Importance of the Different Method (Satellite Accounts)

The impact of a system of satellite accounts of national income could be enormous, which means helping to provide an accurate accounting of essentially very private matters for crucial public purposes. According to Landefeld, et al. (2005) "Such accounts would allow for experimentation with changes in scope and measurement for national accounts in the form of

Author : Assistant Professor, Economics, Room # 932 Academic Building, National University, Gazipur,Bangladesh.
E-mail: olee018@yahoo.

[1] Based on PhD research, Title: "Estimating Non-market Activities: A Study on Unpaid & Underpaid Labor Force in Bangladesh" and awarded PhD in 2011.

[2] PhD, Assistant Professor, Economics, National University, Gazipur.

[3] SNA, System of National Accounts

[4] **Satellite Accounts:** *Satellite accounts are produced in the context of National Accounts but are more flexible as they allow us to change*

concepts, definitions, accounting rules and classifications where this would improve analysis, (Landefeld, et al. 2005). To estimate NMWs, satellite accounts play a significant role. It provides a framework linked to the central accounts and which enables attention to be focused on a certain field or aspect of economic and social life in the context of national accounts. A team of the satellite accounts produces a framework that enables attention to be focused on certain fields or aspects of economic and social life. Satellite accounts can be used to:

i) Valueing non-market outputs and inputs
ii) Present information from National Accounts differently
iii) Add new information to core accounts
iv) Experiment with new concepts and methodologies, which may influence the development of national accounts

So, satellite account can make a room to evaluate NMWs, it can be finally incorporated with the National Account in Bangladesh. By applying the methodological framework researchers can avoid the discrepancies behind to incorporate satellite account in National Account. supplementary accounts. These accounts would be consistent with and could be used with the existing national accounts without diminishing the usefulness of the core accounts". Which one is more important in human life, productivity or standards of living? While development policies are generally geared to increase productivity, increases in productivity are not necessarily reflected in increases or improvements in standards of living. In the industrialized countries, for instance, there are questions about the real benefits of full-time employment for mothers in the absence of adequate child-care arrangements and/or more sharing of household responsibilities by fathers. In the developing countries, living standards may actually deteriorate while GDP rises.

Imperfect market structure never gives accurate price of any factor. As a result, the wage of labor has always been misjudged in the market frame-work process. So the valuing of NMWs has to face some problems. But this research aims to overcome most of the problems and to minimize errors of NMWs of national income accounting through different tools. In Bangladesh, we have been observing many unpaid and underpaid activities (Bayes, et al., 2007) and we face various gender discrimination problems (Hamid, et al., 1994) that have created inequalities among various social strata. So, the research findings and recommendations would try to evaluate the NMWs and make the people aware of their real contribution in the national economy irrespective of their age and gender. On the other hand, the research outcome will also be helpful in formulating government policies to ensure social justice and equities, transfer payment of different vulnerable people who get almost nothing from their non-market participation.

A theoretical frame work regarding the research was augmented to define NMWs, unpaid, underpaid and informal economy that facilitated to determine the methodology as well as estimate the value of NMWs in Bangladesh. The following definitions are pertinent of this paper:

a) Definitions Adopted for the Study: At long last, the following definitions are developed for the clarification and analysis the research procedure:

i. NMWs- Someone, regardless of age and sex, is involving in producing goods or services (i.e. generating additional value), but the conventional market framework fails to evaluate the value of those goods and services. The recognition of that value/activities/works can be assessed by applying some tools such as opportunity cost, third party criterion, market replacement cost, etc.
ii. Unpaid- Due to the lack of market framework, most of the people who have been discharging different NMWs finally do not get any monetary return.
iii. Underpaid- A person who produces goods and services or generates values but is not satisfied with the return (monetary and others), or he or she does not feel well by any circumstances such as working environment, low positioned work, lack of job security, etc.

b) Informal Economy - It follows the basic principles of economics, i.e. goods and services are produced but it does not have any formal framework. Although it follows the procedure of value generation and the medium of exchange of value, the activities of this economy can not be supported by legislative authority and institutes like the government, non government bodies.

III. Organization of the Paper

This paper is made of a research methodology after giving the definition of NMWs, unpaid, underpaid and informal economy. To know the findings of NMWs a abridge estimation procedure is given. Two types of research findings are included: one is produced from data analysis and other from the analysis of case studies. In the area of data analysis, three models are considered in the sphere of two methods of estimation: works method and opportunity cost method. In the field of two methods of estimation of NMWs three models are set out considering different variables of NMWs. In the end, a concluding remark is given for overall findings.

IV. Research Methodology

a) Objective: This paper deals on the NMWs of the unemployed and underemployed men, women, and children who are engaged in generating the value (use value) working in households, outside the households sector and informal sectors. The main objective is to discover and estimate the explanatory variables of NMWs. To know the impact producing NMWs some explanatory variables were taken into considered. The main objectives are –

i. To identify the importance of the individual worth regarding the aggregate value of NMWs.
ii. To know the impact of the particular explanatory variables of NMWs on the aggregate value of NMWs.

b) *Questionnaire design:* A questionnaire to do the research requires to care (a) personal information, (b) family information, (c) 24 hours activities including market works, non market works, leisure, etc. and (d) personal evaluation about the NMWs. This research would like to consider the personal and family information including academic qualification, experience, age, profession, marital status, etc. and recognize the NMWs and its duration a day. All types of partial benefits provided against the NMWs in terms of food, shelter and clothes are intended to be identified by asking questions. Some case studies are also gathered to find real picture of NMWs.

c) *Data Collection:* This research is mainly based on primary data and case study. The primary data sources cover some rural and urban areas in Bangladesh while the secondary data sources involve the direct market work area. To accommodate various NMWs, three types of sample locations were considered: i) urban, ii) rural and iii) semi urban or semi rural (mixed sample areas). The respondents were asked to fulfill a questionnaire having three parts: household NMWs, NMWs outside the household and NMWs before employment. Workers were to choose their part and mention the names of the NMWs, duration of the NMWs and to mention whether receivable anything against the NMWs. Random sample technique was used. Data was collected from Dhaka and Gazipur districts (see Appendix 01, for more). Besides the data, ten case studies were also included.

d) Estimating method: Two methods were used to estimate the value of the NMWs: i) opportunity cost method, and ii) works method. Linear regression technique was exercised to evaluate the relationship among the respective variables.

V. Estimation Procedures

Two methods are considered to estimate the NMWs:

1. works method
2. opportunity cost method

a) Problem with works method: People are familiar with different types of non-market activities. We have divided all these into three main categories:

a) household NMWs

b) outside NMWs and

c) NMWs before employment.

Among the three categories, different types of non-market works are included. In the questionnaire, some blank spaces were kept to accommodate some unfamiliar NMWs. Besides this reason, the name of the NMWs cannot be mentioned as the name of formal works. We also know that, the name of one single NMW can be identified differently in different locations. A sample survey (Hosen, A. 2010) found 16 describe (mention as 1 to 16), 17 (mentioned as 21 to 37) and o6 (mention as 41 to 46) NMWs which represent the three categories of household NMWs, outside NMWs and NMWs before employment respectively:

b) Opportunity cost (OC) method: To get a suitable estimate of NMW opportunity cost method is used. OC method explores the potential of an economy. We have identified three factors of a respondent: the level of education of a respondent, sample areas i.e. where a respondent is living, and age i.e. how older of a respondent. Each factor provides a window to evaluate an individual according to their scope, scale and skill. Three variables were considered to estimate OC method: educational qualification (w1), sample area (w2) and age (w3). These three variables appeared differently for each respondent; it also varied from one respondent to another. To judge each variable for each respondent, other two variables remained the same. Finally, OC was derived from the average value of w1, w2 & w3, i.e. OC named as average wage, W = (w1+w2+w3)/3.

VI. Research Findings

a) Regression analysis:

Model Analysis: Among a variety of independent variables of NMWs, each method of estimation of NMWs was considered two models and each model is distinguished by some independent variables (regular) and some dummy independent variables (see Appendix 02, all dependent, independent and dummy variables, for more). The models are:

i. *Works method:*

Model 1: TVNMWW = F (NEM, THNMW, ETMS),

Model 2: TVNMWW = F (EMSD1, EMSD5, EQD7, KFHD2, EQD6, KFHD1)

Here,

TVNMWW = Total Value of NMW by Works method,

TVNMWOC = Total Value of NMW by OC method

NEM = No. of earning member

THNMW = Total hours of NMW (HW1+HW2+HW3)

ETMS = Estimated total monthly support (FS+SS+CS)

Employment status:

EMSD1: Service provider=1, otherwise=0 (Agri. based employed)

EMSD5: student=1, otherwise=0

Educational qualification:

EQD6:graduate=1, 0=otherwise

EQD7:masters=1, 0=otherwise, Kinship with the family head

[5] Value consists of use value (utility)

Kinship with the family head:

KFHD1: wife=1, otherwise=0 (self=0)

KFHD2: daughter + daughter-in-law=1, otherwise=0

It can be anticipated that, among the various explanatory variables of NMWs earning members, hours involved in NMWs and support against NMWs were influenced most. Generally, it can be assessed that NEM and total value of NMWs are positively related with each other. At the same time THNMW also positively response. On the other hand, people who engage in NMWs and got return or support other than money are found significant. In terms of model analysis, Adj.R^2 = 0.833, F = 165. 475 ensured a well fitted model. Again, in terms of the level of significance, NEM and ETMS were doing well, i.e. both variables strongly play their explanatory role to explain TVNMWW. Now it can be assessed if the number of earning members decrease, there is a possibility to increase the value of NMWs through works method.

inversely related with the total value of NMW. A monetary estimation play huge role to know the actual contribution of NMWs which producing by different group of people in an economy. Although, the measurable the unit of said variables are not remain same. Here, NEM, THNMW, ETMS are considered as the number of people, total hours of NMWs and estimated total monetary support consecutively.

Expected sign of Model 1: (NEM) $^-$, (THNMW) $^+$,(ETMS)$^-$

Expected sign of Model 2: (EMSD1) $^-$, (EMSD5) $^-$, (EQD6) $^+$, (EQD7) $^+$, (KFHD1) $^+$ (KFHD2) $^+$

Result of Model 1

TVNMWW = 480.81 - 256.27 NEM + 501.529 THNMW - .827 ETMS

Std. Error	{304.81}	{109.16}	{23.92}	{.09}
t value	[1.57]	[-2.34]	[20.96]	[-9.16]
signi.	(.118)	(.021)	(20.967)	(.000)

The expected sign was completely found from the three independent variables which confirm whether TVNMWW and NEM were negatively related, TVNMWW and THNMW were positively function, TVNMWW and ETMS were negatively related to each other. Among the three variables, NEM and ETMS were

Example: NEM= 2 (37%, respondents, highest), THNMW= 6.68 (Average hours, Table 16) ETMS=731.33 (PhD1, Excel sheet main, column BD, row 104)

TVNMWW = 480.81 - 256.27 NEM + 501.529 THNMW - .827 ETMS

TVNMWW = 480.81 - 256.27 *2 + 501.529 * 6.68 - .827 * 731.33

TVNMWW = 480.81 - 512.54 + 3350.21 - 604.81

TVNMWW = 3831.02 - 1117.35

TVNMWW = Tk. 2713.67 per month/per person

Result from Excel analysis, TVNMWW = Tk. 2544.30 per month/per person

The gap Tk. 169.37 (OC of SPSS> OC of Excel) between two results is not so wide. So model is well fitted.

Result of Model 2

TVNMWW=2436.60 -411.95 EMSD1 - 1470 EMSD5 +987.66 EQD6 +189.79EQD7

Std. Error	{423.81}	{565.28}	{690.6}	{824.39}	{1622.93}
t value	[5.75]	[-.729]	[-2.129]	[1.198]	[.111]
signi.	(.000)	(.468)	(.036)	(.234)	(.9.12)

+ 1740.47KFHD1 + 243.39 KFHD2

Std. Error	{611.43}	{806.43}
t value	[2.847]	[.302]
signi.	(.005)	(.763)

The expected sign was completely found from three independent variables which confirm whether TVNMWW and EMSD1 were negatively related, TVNMWW and EMSD2 were negatively related and rest of the dummy variables i.e. EQD6, E QD7, KF HD1, KFHD2 all showed result positive relationship with the dependent variables of TVNMWW. In terms of model analysis, Adj.R^2 = 0.134, F = 3.55 does not ensure a good model.

Example: TVNMWW=2436.60 -411.95 EMSD1 - 1470 EMSD5 +987.66 EQD6 +189.79EQD7 + 1740.47KFHD1 + 243.39 KFHD2

TVNMWW = Tk. 3715.96 per month/per person
If we consider only significance variables i.e. Constant (sig. .000), EMSD5 (sig. .036) and KFHD1 (sig. .005), so we can rearrange the equation as
TVNMWW = 2436.60 - 1470EMSD5 + 1740.47KFHD1
TVNMWW = **Tk. 2707.07** per month/per person which comparable to the result of excel analysis (Tk. 2544.30). Although, TVNMWW **of SPSS>** TVNMWW **of Excel, so, the above model is well fitted.**

ii. *OC Method:*

Model 1: TVNMWOC = F (NEM, THNMW, ETMS)
Expected sign of Model 1: (NEM) $^{-}$, (THNMW) $^{+}$, (ETMS) $^{-}$

Result of Model 1:

TVNMWOC = 579.82 - 238.03 NEM + 430.14 THNMW - .903 ETMS

Std. Error	{290.35}	{103.98}	{22.785}	{.086}
t value	[1.99]	[-2.29]	[18.88]	[-10.50]
signi.	(.049)	(.024)	(.000)	(.000)

The expected sign was completely found from three independent variables which confirm whether TVNMWOC and NEM were negatively related, or TVNMWOC and THNMW were positively function, or TVNMWOC and ETMS were negatively related with each other. Among the three variables, NEM, THNMW and ETMS are found significant. In terms of model analysis, Adj.R^2 = 0.803, F = 135. 621 ensured a well fitted model. Again, in terms of the level of significance, NEM, THNMW, ETMS and constant were doing well, i.e. all variables in the model strongly play their explanatory role to explain TVNMWOC. Now it can be assessed if the number of earning members decrease, there is a possibility to increase the value of NMWs through works method.

Example: NEM= 2 (37%, respondents, highest), THNMW= 6.68 (Average hours, Table 16) ETMS=731.33 (PhD1, Excel sheet main, column BD, row 104)
TVNMWOC= 579.82 - 238.03 NEM + 430.14 THNMW - .903 ETMS
TVNMWOC = 579.82 - 238.03*2 + 430.14 * 6.68 - .903 * 731.33
TVNMWOC = Tk. 2316.7 per month/per person
Result from Excel analysis, TVNMWOC = Tk. 2183 per month/per person
The gap Tk. 133.7 (OC of SPSS> OC of Excel) between two results is not so wide. So model is well fitted.

b) Case studies

The study used participatory methods of data gathering and qualitative methods of data analysis. Data was gathered to answer these questions through some objectives which include

a)family details, b) personal information, c) name of the NMWs which he or she has been discharging, with duration and time in day or in a month or other, d) own perception about the NMWs and evaluate then and e) justification of the evaluation of the NMWs.

A total of ten case studies were covered from different sample locations. Case one is given as an example:

Case one:

Case Study: Ramija

I am Ramija. We (mother, brother, sister-in-law and me) live on a boat beneath the bridge of Titarpur. My mother (45) is a 'shandari' (trading cosmetics for low income group). My brother (25) works at a garments factory. My sister-in-law and I stay in the house all day long. This is the boat here; we have been living here for 40 years. Previously, my mother was the only earner. But now, my brother also earns and with this we have to survive. We don't have to pay house rent so we, somehow, survive with the income. After waking up in the morning, my sister-in-law and I clean the house and my mother cooks. After meal, mother goes for business and my brother at work.

My sister-in-law and I keep inside the house throughout the day. At noon, we cook, shower and eat. At night we cook, eat, and wash the plates and go to sleep. We don't have the feel of the word happiness in our lives.

Almost every work I do in all day is without money. Who is going to pay me for cooking in the house? I clean the house, wash the clothes. Mother stays off the house all day long. So, my sister-in-law and I have to do all works in the house. Why money for this work?

People say we are "vagabonds", happy folk, with nothing to do, and sleeping all day long. But, we are not happy in reality. Since we are "vagabonds", nobody wants to offer us jobs. People from Jamalpur, Mymensingh come here and get jobs. But, we don't because we don't have a permanent address, living in the boats. Because of living in boat, nobody wants to trust us. What is this called, happiness or death? We don't have electricity, or even the opportunity of education. Nobody wants to talk to us even. If we go to school, they ask us our whereabouts. They say, "We won't accept you in our school because you are today here; tomorrow you will be somewhere else". Please tell the government that we are not happy at all. We want a place to live at. But we don't get it because the govt. charges tk.2-3 lac for a special allotment of land. The only thing they know is bribe.

i. Findings from case studies: Different types of people were requested to be interviewed. A framework was formulated for asking or interviewing the participants. The case studies include the statements of housewife, students, service holder, illiterate persons, and so on. All the respondents were somehow related to the NMWs like washing clothes, taking care of the elders, shopping, cooking, works on charter accountant firm, giving tuition, help to cook (prepare cooking materials), preparing food for children and feeding, washing the pots, cleaning the house, etc.

The following diagnoses were made to understand about delivered NMWs, required time, personal evaluation against their NMWs:

Table 01 : Summary of case studies

Case study No.	Delivered NMWs	Spending time on NMWs	Personal evaluation of NMWs value
i.	Cooking, cleaning the house, washing the clothes elder care (mother), other works in house.	No definite time a day	Evaluate nothing (Make a question, who is going to pay?)
ii.	Shopping, washing cloth and teaching	5 and halve hours a week.	Tk. 1150 per month
iii.	Washing clothes, ironing, shopping and others indefinite NMWs	2 hours a day	Tk. 1100 per month
iv.	Washing clothes, wiping the house, sizing vegetables, cooking, taking care of children, etc.	7 hours day	Tk. 2/3 thousand per month
v.	Cooking, helping (mother) in cooking, washing clothes, giving tuition to younger sister	4/5 hours a day	Not mentioned but identifies as valuable
vi.	Shopping (once a week), guiding younger sisters, work in a CA firm,	9/10 hours a day	Tk. 10/12 thousand in per month
vii.	Washing clothes, ironing them, shopping	2 hours a day	Tk. 1600 per month
viii.	Cooking, shopping, washing	3/4 hours per day	Tk. 7/8 hundred in per month
ix.	Washing and ironing clothes, taking care of the elders, shopping	2.5 hours a day	Tk. 2,900 per month
x.	Washing cloths, ironing them, cleaning my room, shopping etc.	No definite time a day	Tk. 3 to 6 thousand per month

There were lots of variations in personal evaluations of NMWs. Sometimes, they found it difficult to evaluate NMWs. All respondents agreed that their NMWs were valuable for the family as well as the nation, and they would like to evaluate their NMWs, not aware or not familiar of the procedure to estimate the value of NMWs.

Meanwhile, respondents were very conscious of the significance of the NMWs, they agreed that the contribution of the NMWs helped their families to make a good future. All the beneficiaries, however, do not reply the same; they, simply, liked to say, "It is their duty to do NMWs, they bound to do that, they have no other option".

VII. Concluding Remarks

A significant value of the NMWs has been derived from the people of different background in

Bangladesh. Three econometric models were introduced under two methods of estimation: works method and OC method. Each model applied linear regression technique by considering the respective dependent and independent variables. There were three independent variables: NEM, THNMW and ETMS, and one dependent variable: TVNMWW (Model 1). The model showed that, all expected signs of independent variables were found accordingly, and NEM and ETMS were found highly significant and the model was found to be well fitted (Adj R 2 = 0. 833). The second model (Model 2) had several independent variables: EMSD1, EMSD5, E QD6, E QD7, KF HD1 and KFHD2. Though EMSD5 and KFHD1 were found highly significant, the mode was not quite good (Adj R2 = 0.134). On the other hand, first model under the OC method (Model 1) took the same independent variables. Here, all were found highly significant and the regression line sound to be fitted as well (Adj R2 = 0.803).

It can be assessed that, the intensity of the NMWs in terms of labor hours (384.79 billion labor hours, Hosen, 2011, PhD works) is so high because of the labor surplus characteristics of Bangladesh. So, the economic theory about the augment of input is evaluated inversely in terms of monetary return i.e. huge availability of input is reduced the value or even value less of that input. Moreover, the social structure of Bangladesh itself is working a barrier to incorporate the value of the NMWs. To overcome these barriers, further in-depth research is required in this field.

Appendix 01

Table 02 : Study places and number of samples

	Gazipur				Tongi, Gazipur					Dhaka																	
Location	Jamuna	Harinal	Joydeppur	Titarkul	Kamarpara	Kalyartag	Dhour	Nayanagor	Turag	Mirpur-1	Mirpur-2	Mirpur-6	Mirpur-10	Mirpur-11	Mirpur-12	Pollobi	Gabtoli	Kaylanpur	Duaripara	Ibrahimpur	Mohamodpur	Dhakinkhan	Baribath	Uttar Bishil	Dhanmondhi	Uttara, CID	First Colony	Total
Nos	12	13	01	04	05	01	01	01	03	08	02	02	04	03	04	17	01	01	01	05	01	04	01	01	01	01	01	00

Source: Field work, April-August, 2009

Appendix 02 :

i) *Dependent variables :* Two dependent variables are

- Total value NMW for consider works, monthly (TVNMWW)
- Total value NMW for consider OC, monthly (TVNMWOC)

ii) *Independent variables:*

1) House hold no(HH), 2) S EX, male=0,female=1, 3) AGE, 4) Sample area (S AD1), urban=u=1, otherwise=0, (m =0), 5) Sample area (SAD2), rural=r=1, otherwise=0, 6) Family members (FMS), 7) No. of earning member (NEM), 8) Personal income, monthly (PI), 9) Total monthly income of a family (TMIF), 1 0) Total hours of NMW (HW1*+HW2+HW3) (THNMW), 11) Total estimated NMW, support included, monthly (TENMWM), 1 2) Estimated total monthly support (FS+SS+CS) (ETMS), 13) Involvement in non market works (INMW), 1 4) Educational qualification, EQD1:less than primary=1, 0 =otherwise, (illiterate=0), (EQD1), 15) Educational qualification, EQD2:primary pass=1, 0 =otherwise (EQD2), 1 6) Educational qualification, EQD3:eight pass=1, 0=otherwise, (EQD3), 17) Educational qualification, EQD4:SSC pass=1, 0= otherwise, (EQD4), 1 8) Educational qualification, EQD5:HSC pass=1, 0=otherwise, (EQD5), 1 9) Educational qualification, EQD6: graduate=1, 0=otherwise, (EQD6), 2 0) Educational qualification, EQD7:masters=1, 0=otherwise, (EQD7), 2 1) Kinship with the family head, KFHD1: wife=1, otherwise=0 (self=0) (KFHD1), 22) Kinship with the family head, KFHD2: daughter + daughter-in-law=1, otherwise=0 (KFHD2), 23) Kinship with the family head, KFHD3: son=1, otherwise=0 (K FHD3), 24) Kinship with the family head, KFHD4: brother + cousin=1, otherwise=0 (KF HD4), 2 5) Kinship with the family head, KFHD5: father + father-in-law=1, otherwise=0 (KF HD5), 2 6) Kinship with the family head, KFHD6: nephew=1, otherwise=0 (KFHD6), 27) Marital status,MSD1: married=m=1,

otherwise=0, (um=0) (M SD1), 28) Marital status,MSD2: divorce=1, otherwise=0, widow=3 (MSD2), 2 9) Marital status,MSD3: widow=1, otherwise=0 um =0, m=1, divorce=2, widow=3 (MSD3), 30) Prime earner, PED1:husband=1, otherwise=0, (s elf=0) (P ED1), 31) Prime earner, PED2:father+father-in-law=1, otherwise=0 (P ED2), 32) Prime earner, PED3:elder brother + younger brother + cousin=1, otherwise=0 (PED3), 33) Prime earner, PED4: elder son + son=1, otherwise=0 (PED4), 34) Prime earner, PED5:mother=1, otherwise=0 (PED5), 3 5) Family's highest level of education,FHLED1:class 1 to 5=1, otherwise=0 (illiterate=0) (FHLED1), 35) Family's highest level of education,FHLED2:class 6 to 8=1, otherwise=0 (FHLED2), 3 6) Family's highest level of education,FHLED3:class 9 to SSC=1, otherwise=0 (FHLED3), 3 7) Family's highest level of education,FHLED4:HSC=1, otherwise=0 (FHLED4), 38) Family's highest level of education ,FHLED5:graduate=1, otherwise=0 (FHLED5), 39) Family's highest level of education,FHLED6:masters=1, otherwise=0 (FHLED6), 40) Major profession of the family, MPFD1: Service intensive=1, otherwise=0 (L abor intensive=0) (MPFD1), 41) Major profession of the family, MPFD2: technical=1, otherwise=0 (MPFD2), 42) Employment status, EMSD1: Service provider=1, otherwise=0 (Agri based employed) (EMSD1), 43) Employment status, EMSD2: Entrepreneur =1, otherwise=0 (EMSD2), 44) Employment status, EMSD3: house wife=1, otherwise=0 (EMSD3), 45) Employment status, EMSD4: unemployed=1, otherwise=0 (EMSD4), 46) Employment status, EMSD5: student=1, otherwise=0 (EMSD5), 47) Employment status, EMSD6: underemployed + business look after=1, otherwise=0 (EMSD6).

iii) *Dummy variables:* Some independent variables are required to adjust with dummy variables which are:

1. Sample area: Three samples are broadly considered as a) Urban area, b) Rural area and c) Mixed area. So two variables are required to adjust.
2. Sex: Two categories of sex are male and female.
3. Educational qualification: Eight categories are illiterate, less than primary, primary pass, eight pass, SSC pass, HSC pass, graduate, masters.
4. Kinship with the family head: Seven types are wife, daughter, son, brother, father, nephew and self.
5. Marital status: Four categories are married, unmarried, divorce and widow.
6. Prime earner: Six types are self, husband, father, brother, son and mother.
7. Family's highest level of education: Seven categories are illiterate, class 1 to 5, class 6 to 8, class 9 to SSC, HSC, graduate and masters.
8. Major profession of the family: Three types are labor intensive, service intensive and technical.
9. Employment status: Seven categories are agri. based employment, service provider, entrepreneur, house wife, unemployed, student, and underemployed.

References Références Referencias

1. Abdel, I. & Sirageldin, H. (1969). Non-market components of national income. Survey Research Centre, ISR- Institute of Social Research, Michigan: The University of Michigan, Ann Arbor.
2. Ahmed, S. (1997, Jan-March). Problem of national income estimation in Bangladesh. The Bangladesh Accountant, Journal of the Institute of Chartered Accounts of Bangladesh, Vol. 25; No. 1, ICAB.
3. Bangladesh Economic Review (2006, June). Dhaka: Government of People's Republic Bangladesh, pp.123-155, 224-227.
4. Bayes, A. and Hossain, M. (2007, January 5). Gramer manush grameen aurthonity: jibon jibikar poribortan porjalochana. Dhaka: Abdul Azad, Chairman, Writers' Foundation.
5. Bangladesh Bureau of Statistics (2008). Key Findings of Labor Force Survey 2005-06. BBS, Dhaka: Government of the People's Republic of Bangladesh.
6. Bangladesh Bureau of Statistics (2008). Key indicators From the Wage Survey-2007.measurement and valuation of unpaid contribution: accounting through time and output, Dhaka: BBS.
7. Bangladesh Bureau of Statistics (2005 December). Statistical Year Book of Bangladesh, 24 ea. Dhaka: BBS, Ministry of Planning, Government of Peoples Republic of Bangladesh.
8. Bangladesh Bureau of Statistics (2010). Report on Monitoring of Employment Survey-2009. Dhaka: BBS, pp. 6-9
9. Beckerman, W. (2001). An introduction to national income analysis (3rd ed.). University Book Stall, New Delhi: Weidenfeld and Nicolson.
10. Blunch, N. H., Canagarajah, S. & Raju, D. (2001, July). The informal sector revisited: A synthesis across space and time. Social Discuss Paper Series, No. 0119 Washington, D.C: The World Bank.
11. Budlender, D. (2004). Why should we care about unpaid care work?. Precigraph, Mauritius, Harare: Frontline Electronic Publishing (Pvt.) Ltd: Southern Africa and Indian Ocean States.
12. Chadeau, A. (1992, Spring). What is households' non-market production worth?. OECDEconomic Studies No. 18 (pp. 86-102).
13. Charmes, J. (2006, May). Expert group on informal sector statistics (Delhi group) 11th &12th. Paris: Institute of Research for Development.

14. Domingo, S. (1995). The feminist valuing the devalued process. Instraw/ser.b/47: Gains Net, created by: Alexis Frank, Shaheli Guha, Hitomi Yoneya.
15. Folbre, N. (2001). The invisible heart: Economics and family values. New York: The New Press
16. Folbre, N. (1986). Cleaning house, new perspectives on households and economic development Journal of Development Economics, 22 (1985) 5-40 North – Holland.
17. Folbre, N. (2004 et al.). Policies to create financial incentives for caring work. Value of Traditionally Feminine Caring Work.
18. Hamdad, M. (2003, May). Valuing households' unpaid work in Canada, 1992 and 1998:trends and sources of change. Ottawa: Statistics, Canada Economic Conference.
19. Hamid, S. (1994, June). Non-market work and national income: the case of Bangladesh. TheQuarterly Journal of The Bangladesh Development Studies, Dhaka, Vol. XXI, Nos 2 & 3.
20. Hawrylshyn, O. (1998). Towards a definition of non-market activities. Ontario: Queen's University, Kingston.
21. Hersch, J. (1991, May). The impact of nonmarket work on market wages. The American Economic Review, Vol. 81, No. 2, pp. 157-160. (Stable URL: http://www.jstor.org/stable/2006845)
22. Hosen, A. (2010). "Estimating Non-market Activities: A Study on Unpaid & Underpaid Labor Force in Bangladesh" PhD research work, National University, Gazipur, supervised by Anu Muhammad, Professor, Economics, Jahangirnagar University, Saver, Dhaka.
23. Hossain, J. and Assaduzamam, A. S. M. (2006, January). National minimum wage forworkers' socio-economic security: rights, realities and forward. Dhaka: Unnayan Onneshan, The Innovators.
24. Hussmanns, R. (2004). Measuring the informal economy: From employment in the informalsector to informal employment. Geneva: ILO Working Paper No. 53, Policy Integration Department Bureau of Statistics.
25. Islam, M. K., Parveen, T. & Hoque, M. N. (2001, June). Costing non-market activities in health sector: probable options–Bangladesh perspective. The Jahangirnagar Economic Review, Vol. 12, No. 1, (pp. 10-20).
26. Landefeld, J. S, Fraumeni, B. M., & Vojtech, C. M. (2005). Accounting for nonmarket production: a prototype satellite account using the American time use survey. Boston: The Bureau of Economic Analysis (BEA).
27. Majumder, P. P. (1986). Women, work and home. Research Report No. 49, Dhaka: Bangladesh Institute of Development Studies.
28. Mankiw, G. N. (2001). Principles of economics. (2nd ed.), 6277, Orlando, FL 32887-6777, Philadelphia: Harcourt College Publishers, Harcourt Inc. (pp. 398-407).
29. Marshall, G. (1998). A dictionary of sociology. Informal economy & non-market work, New York: Oxford University Press.
30. Muhammad, Anu (2005, February). Bangladesher orthonitir gotimukh. 2005, Dhaka: Shrabon Prokashani.
31. Muhammad, Anu (2008, January). Kothay jachche Bangladesh. Dhaka: Samhati Prokashan.
32. National Accounts Statistics of Bangladesh (2000, December). Strengthening nationalaccounts of Bangladesh (SNAB). Dhaka: BBS, Government of Peoples Republic of Bangladesh, Bangladesh.
33. Nayem, R. (1993). Women and household economic work: definition and related concepts.No. 3rd, Dhaka: Unnaion Beterkko.
34. Saha, V., Kar, A. & Baskaran, T. (2004, February). Contribution of informal sector and informal employment in Indian economy. New Delhi: 7th Meeting of the Expert Group on Informal Sector Statistics (Delhi Group).
35. Soto, H. de (1986). El Otro Sendero. (Spanish Edition), Amazon.com: Sudamericana, Retrieved 2006-12-18.
36. Soto, H. de (1989). The other path: the economic answer to terrorism. Peru: Harper Collins.
37. Vhattacharyya, K. R. (2009). Beyond the factory: globalization, informalisation of production and the new locations of labour. Economic and Political Weekly, May 30 – June 5, 2009, Vol XLIV No. 22, pp 35-54, A Sameeksha Trust Publication.