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Gender-wise determinant of informal sector employment in Jigjiga town: A cross sectional study

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This study indicates that in Jigjiga, the informal sector clearly plays a buffer role. From sampled respondent, the researcher analyzed the participants in the informal sector and tries to compare their earnings based on the activities they transact and the amount of income they earn. The study revealed that the average monthly earning of both gender was far better than some formal sector activities. Thus, the legal minimum wage indicates that the informal sector plays an undeniable role at the household level and the town, in general. Individual differences on employment are a function of factors which influence the demand and supply of labor; this study examines the supply side only. Probit model was used for analysis. The results of the study showed that married participants and households with large family size show significant and positive likelihood in informal sector participation. Educational level also influenced participation in the informal sector in both gender. Meanwhile, the Probit model result showed that for every male participant, the likelihood of involvement in informal sector declines as age increases and is significant while for female households, age was insignificant. Finally, in both gender, personal attributes is not a significant determinant of participation in the informal sector.

Key words: Self-employed informal sector employment, probit model, Jigjiga.

INTRODUCTION

Economically, Jigjiga depends on the trade and service sector and to some extent, agriculture and manufacturing.

Although, the trade and service sector plays a major role in the economy of the town, the level of participation of female and male is different. As at the time of this study, the poverty level of the town had not been studied. However, the rest of the countries' cities/towns have high incidence of urban poverty. In Jigjiga, there is no urban social security programme or unemployment benefit. Fransen and Van Dijk (2008) opine that because of

exclusionary informality, people choose the informal sector as the best and a safety net for the poor in urban areas.

Therefore, people use employment in the informal sector with its diverse sub sectors as a risk averting mechanism. As in most Ethiopian towns, there are different sub-sector divisions of the informal sector in Jigjiga such as the distribution sector where petty traders ("gullit") sell various goods. Within all sub divisions of the informal sector, there exists gender-wise dissimilarity.

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Male and female participation in the informal sector seem different in nature. Chen (n.d.) tried to figure out the participation of women and men in the informal sector thus:

“1. Majority of women in the informal sector are traders and local producers or casual and subcontract workers; relatively few are employers who hire paid workers”

2. Men and women tend to be involved in different activities even when they are involved in the same trade: in many countries, for example, male traders tend to have larger scale operations and deal in non-food items while female traders tend to have smaller scale operations and deal in food items.”

This study however, is limited to self-employed informal sector and their role. The benefits of the informal sector are in the form of income generation and employment, especially among women, which is remarkable. Due to the economic nature of Jigjiga town, the significance of the informal sector is immense.

Sharma (2012) argues that “due to globalization, quality of life among women is reducing as the formal sector is experiencing decline and employment opportunities are fast reducing and unable to provide employment in an ever-growing population. In all these, the informal sector has an important role to play.” This study thus aims to analyze the role of the informal sector (self-employment) in income generation and the significance of gender representation.

Significance of the study

1. In Ethiopia, Somali region in general and particularly Jigjiga, the contribution of informal sector is not well discussed and documented so far with respect to income generation. Analyzing the role of informal sector will help policy makers to investigate the situation and give better recommendations for the regional/ urban development of the town.

2. Though the informal sector has an undeniable role to play in the economy, if this role outweighs the role of the formal sector then it will lead to different social, political and economical crisis. Then it is better to understand this role in order to minimize the hitch.

LITERATURE REVIEW

According to Sharma (2012), the informal sector can be categorized into two: traditional and modern. “Traditional informal sector is small in size and has low capital and labor productivity, static technology and household based production unit. Modern informal sector is larger in size, capital

-intensive and more technologically advance.” This is the case in Ethiopia where the formal sector is larger than the informal. The reasons given for the cause of informality varies according to different authors.

Meanwhile, Fransen and Van Dijk (2008) describe the source of informality in Addis Ababa’s as: *exclusionary informality*, when business and households are driven into informality by poverty; and *voluntary informality*, when business and households opt to be informal, based on a cost-benefit analysis.

The role of informal sector in any part of the world especially in developing world is enormous and the causes of engagement in this sector are much. The study conducted by Wamuthenya (2010) indicates that in Kenya, most informal labor activities in urban areas are driven by the need to make ends meet and are dominated by the poor (women mainly) desperate to eke out a living.

To encourage such activities as part of a necessary coping strategy is non-equivalent to encouraging the informal sector as a deliberate part of social and economic development, or relying on the sector to create those jobs that the ordinary economy cannot generate. In Jigjiga, this is also the existing reality taking place with its countable effects.

According to ILO (2013), the contribution of informal sector was ranked among the highest in West Africa countries (Benin, Niger and Togo). The informal sector excluding agriculture, accounts for more than 50% of non-agricultural gross value added (GVA). While in India, the contribution of the informal sector to the economy, excluding agriculture is also very high at 46% of non-agricultural GVA in 2008.

Concerning factors that affect self-employed informal sector participants; Wamuthenya (2010) concluded from her study in Kenya, that female household heads are more likely to work in the informal sector irrespective of age, while male household heads are more likely to work in modern wage employment. Diego and Kimie (2012) asserted that in Middle East and North Africa, informality rates among workers who attained primary and/or basic education are generally much higher than workers who attained secondary vocational and/or tertiary education.

METHODOLOGY

The researcher employed primary source of data. Questionnaires were disseminated at the establishment of informal sector to fit in with the nature of the participants, and afterward samples using non-probability and probability sampling were used. The researcher applied stratified random sampling in order to analyze the gender difference, and also to determine the informal sector employment. Then both men and women grouped in each stratum and from each stratum sample of 100 units were selected purposively making the sampling non-probabilistic. In Jigjiga from total Kebeles (districts) in about 3 Kebeles, the concentration of informal sector is substantial after that the researcher gave more acknowledgment for these localities, and a total of 200 sample units were found from both gender. Even though the main informants were self-employed

Table1. Distribution of male and female workers in selected branches of the urban informal sector in Jigjiga by income own survey 2012 (in percent).

Income Birr per day	All activities		Trade in goods		Trade in food and beverage		Trade in service		Construction, manufacturing and transport	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Below 50	34.34	37.07	36.36	36.58	62.5	36.11	31.81	36.36	28	100
51-100	39.39	40.44	31.81	34.14	37.5	44.44	43.18	54.54	40	-
101-150	15.15	16.85	13.63	19.51	-	16.66	15.9	9.09	20	-
151-200	6.06	2.24	13.63	4.87	-	-	4.54	-	4	-
200 >	5.05	3.37	4.54	4.87		2.77	4.54		8	
All	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

in informal sector, participant samples were collected from public sector employees to characterize those who are not employed in the informal sector; in total the study recorded 75 respondents in both male and female. Descriptive and econometrics methods were used to analyze the objectives.

Model specification

One of the objectives of this study was to study the determinant of the individuals' participation in the informal sector, which would be analyzed by categorizing the gender and examining it with two equations. Some of the following hypotheses are drawn to evaluate supply side factors that affect the participation in informal sector.

Hypothesis

1. Female head households are highly involved in informal sector employment than the male head.
2. Married families are highly exposed to participate in self-employed informal sector than their counterpart bachelors.
3. Participants with low level of education are likely to be in the informal sector employment.
4. For both women and men, if the non-labor income becomes low they may likely participate in the informal sector.

To examine these and other variables, probit model was used. Probit model which is a scalar dependent variable Y is a binary variable, $Y \in (0, 1)$. The general expression of the model is:

$$Y^* = \alpha + \beta X' + \varepsilon \quad (1)$$

Where

$$\begin{cases} y_i = 1 \\ y_i = 0 \end{cases}$$

if $\begin{cases} y^* > 0 \text{ there is job in informal sector for female} \\ y^* \leq 0 \text{ there is no job in informal sector for female} \end{cases}$

$Y^* = \alpha + \beta X' + \varepsilon$ Y^* is unobserved, while latent variable indicates the probability to employ in the informal sector for female. X' is the vector of explanatory variables that determines the participation in the informal sector. So the model would take the form of:

$$P(Y_i=1) = \Phi(\beta X') \quad (2)$$

The other model will be for the male counterparts

$$Y^* = \alpha + \beta X' + \varepsilon \quad (3)$$

Where

$$\begin{cases} y_i = 1 \\ y_i = 0 \end{cases}$$

if $\begin{cases} y^* > 0 \text{ there is job in informal sector for male} \\ y^* \leq 0 \text{ there is no job in informal sector for male} \end{cases}$

Y^* is unobserved, while **latent variable which indicates** the probability to employ in the informal sector for male. X' is the vector of variables that is expected to affect the participation of male in the informal sector. Therefore, the model will take the form of:

$$P(Y_i=1) = \Phi(\beta X') \quad (4)$$

RESULTS AND DISCUSSION

The role of informal sector

Income of self-employed above public sector minimum wage

Those who are in the public sector with minimum wage must complete their primary school education in order to get the fixed level of wage rate. But if an individual who is an illiterate and unable to complete his/her primary education, then the person has to be self-employed in order to earn a living.

The researcher found from his own survey in the informal sector that the least income was birr 600/month in the year 2012, which was higher than birr 420 per month (legal minimum wage rate).

As indicated in Table 1, the researcher found four categorical division of informal sector namely those who trade processed local item (food and beverage) was

heavily dominated by female (82%), but the rest was managed by male counterpart.

Related to this analysis, the result shows that average income earned by female who participate in this sector is

birr 2281/month and the male gets birr 1616/month which is far more than the

Table 2. Regression result on factors that affect participation in informal sector for male.

Participate	Coef.	Std. Err	z	P> z	(95% Conf. Interval)	
Age	-0.4774467	0.2208812	-2.16	0.031*	-.9103658	-.0445276
Agesque	0.0054563	0.0030399	1.79	0.073**	-.0005017	.0114144
Married	0.8468169	0.4379968	1.93	0.053**	-.0116411	1.705275
Non labor income	0.1725958	0.4594352	0.38	0.707	-.7278806	1.073072
Head	1.037696	0.4511442	2.30	0.021*	.1534698	1.921923
Hn size	0.1635625	0.0674799	2.42	0.015*	.0313043	0.2958208
Years educa	-0.2521022	0.043298	-5.82	0.000***	-.3369647	-.1672397
cons	10.13134	3.776025	2.68	0.007 ***	2.73047	17.53222

Note: 0 failures and 1 success completely determined. *=Significant at 5% , ** =Significant at 10%, ***= Significant at 1%; Correctly predicted = (count R²= 88.65 percent); Specificity = 78.05 percent; Sensitivity = 93.00%.

legal minimum wage. The second categories went to trade in goods.

This sector also share the same story of its predecessor but men are slightly favored because the average monthly earning of female and male were birr 2486 and 2488/month, respectively. The story for the third group (these who participate in service) being the average monthly earning of female was birr 1762/month and for men birr 2296/month.

Finally, the combination of manufacturing, construction and transport in male has an average monthly benefit of birr 2632/month and 952/month for female.

Gender bias: Income difference between men and women

Even though there are mixed groups of self-employed informal sector, the researcher for simplicity used four respective categories. These division with respect to gender is quite different, for instance in Jigjiga male dominate in manufacturing, construction and transport sub sectors, since there are only 4% of female.

But participation of female in trade, food and beverage is about 82% and only 18% in male. From the survey by the year 2012 in Jigjiga, there was direct correlation between the number of participant and their revenue. The more a gender is congested in a sector the more s/he can be more profitable, because division of job/labor creates specialization.

The study took the following case to strengthen the notion, most female were not involved in activities that require physical strength like manufacturing as it was in Jigjiga, so in this sector female would not gain much profit if they partake in manufacturing.

Meanwhile, male also didn't partake in activities like trade in food and beverage because they can't easily

operate as female did. Based on the analysis made using the categories discussed earlier, it implies that in Jigjiga there is gender bias with respect to earning. The average earning of male was birr 2258/month but for female it was 1870/month.

Analysis of gender wise determinants of informal sector employment

The dependent variable in the model was having a job in the informal sector which was used separately for men and women. 0 was assumed if the individual has no job and 1 otherwise. Seven explanatory variables were selected as main supply side factors that include personal background affecting employment decision in informal sector in the study area. And the following analyses were drawn (Tables 2 and 3).

Household head

In Ethiopia generally and Jigjiga specifically, a person can be called as head of household if s/he plays leading role in providing for the family economically. Accordingly, job search is more intensive for male headed household. For male, there is positive probability of participating in the informal sector and significant with marginal effect (ME) of 0.23% point if he is head of the household. While for the female, the likelihood of participating in the informal sector is positive and has the ME of 0.049% but it is insignificant at 1, 5 and 10%, respectively.

Age

The regression coefficient on age dictates that as age increase by one, the probability of female to participate in the informal sector will increase and its marginal effect is 0.05%. Whether a female is aged or young she can participate in the sector. An individual (female) participate without age restriction because to undertake in this

activity, the participant's attitude is not considered. But the narrative on male counterpart seems reverse because, the likelihood of participating in the informal sector will decrease if the age of male increase by one with negative marginal effect at

Table 3. Regression result on factors that affect participation in informal sector for female.

Participate	Coef.	Std. Err.	z	P> z	(95% Conf. Interval)	
Age	0.0398005	0.1486133	0.27	0.789	-0.02514763	0.3310773
Agesque	-0.0021521	0.0022396	-0.96	0.337	-0.0065416	0.0022374
Married	0.8522837	0.4836714	1.76	0.078	-0.0956949	1.800262
Non	-0.4647819	0.5413097	-0.86	0.391	-1.525729	0.5961656
Head	0.3496737	0.5145897	0.68	0.497	-0.6589036	1.358251
Hh size	0.1952182	0.0674425	2.89	0.004	0.0630334	0.3274031
Year sed	0.2867182	0.0498279	-5.75	0.000	-0.3843707	-0.1890489
cons	2.145038	2.408159	0.86	0.373	-2.864942	6.864942

*=Significant at 5%, ** = Significant at 10%, ***= Significant at 1%; Correctly predicted = count $R^2 = 89.55$ percent; specificity = 77.78 percent; sensitivity = 93.88percent.

0.068%. Interestingly, when male become aged they chose more leisure time and avoid the informal sector.

Married

Marital status variable had positive and significant effect on informal sectors involvement for both genders with marginal effect of 0.136 for male and 0.138% for female. Irrespective of the sex, whoever is married has the responsibility over the household. Wherever we compare the circumstance of female marital status, her labor participation is highly influenced by the decision of her husband income. It seems conceivable that the participation of married woman and man in informal sector is related positively, which was compatible with results of the model.

Years of education

The parameter for the years of education suggests that if the female/male participant increases the years of education by one, the involvement of women/men in the informal sector will decrease, and statistically significant with negative marginal effect of 0.042 and 0.0365%, respectively. For an individual having a job in the formal/public sector, the person is obliged to have formal educational qualification. The destiny of those who are illiterate will be to rely on informal sector.

House hold size

A large household may mean an increase in financial constraints of the household, thus requires involvement in the job market. A large household with non-working adult members, especially females may relieve the mother of some of the domestic responsibilities such as looking after young children thus enabling them to sell in the market. Here, the effect on the probability of being employed (female and male) would be positive and significant with marginal effect of 0.029 and 0.023%, respectively.

Conclusion

The study used cross-sectional data collected in the year 2012 and covers both women and men from the age group of 16 to 60. The survey covered a sample of 275 urban respondents with the informal sector participants being 71 and 73% for both male and female, respectively. Respondents of informal public/private sector were 29 and 27% for both male and female respectively.

Descriptive and econometrics method of analysis were used to answer the objectives of the study. Even though most of the participants in the informal sector were illiterate who couldn't complete their secondary school education, those in the formal sector were able to complete theirs.

But it is incredible to compare the legal minimum wage rate and monthly income (revenue) of informal sector self-employee. The average monthly earning of self employed informal sector participant of all grouped sector was birr 2064/month which is far better than birr 420/month for public sector participant who got the minimum wage rate.

In Jijiga town, there was gender bias with respect to earning in different categories. Male are slightly favored than female in general activities of informal sector, because the average earning of male was birr 2258/month but it was mere 1870/month for female.

From sampled survey, the researcher analyzed participant in the informal sector. The average monthly earning of both sexual categories indicates how far some formal sector activities have gone. From the survey, the researcher found that from the female respondent, about 30.61% are household head and 87% of male are also head of the household.

Probit model was used to analyse the determinants of participation in informal sector for both genders separately

used STATA 10 software package. Comparing the two sexes, the variable called head of the household have different significance. For male participant, there was positive likelihood of participating in the informal sector. While for female, although the probability of participation increased, being head of the household it had zero effect because most female participates were not head of the household.

As age increase by one, the probability of female to participate in the informal sector will increase. But the importance of age on participation would be insignificant though the statistical relationship between age and participation is positive. But the reality on the ground did not confirm this. But the story on male counterpart seems inverse, because the likelihood of participating in the informal sector will decrease if the age of male increase by one and it is significant.

Irrespective of the gender, being married has a lot of responsibilities. Married men are breadwinners of the household, meanwhile female also share burden of the male. In the case of the developing world, comparing the circumstance of females who are married and not married, her labor participation is highly influenced by the decision of her husband income. Therefore, it's plausible for married women and men; their participation in the informal sector is related positively.

The parameter for the years of education suggests that; if female/male participant increase, the years of education by the involvement women/men in informal sector would decrease.

Apparently for a large household with non-working adult members, females especially may relieve women of some of the domestic responsibilities such as looking after young children thus enabling them to sell in the market. Here, the effect on the probability of being in informal employment for female and male would be positive if there is large household size.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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