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Economic Contribution of Non-Timber Forest Products in Rural Livelihood of Dolakha, Nepal

Sabina Maharjan

Singhania University, School of Science, Rajasthan, INDIA

Megh R. Dangal

Kathmandu University, School of Arts, NEPAL

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Abstract

Non-timber forest products (NTFP) are reported to have significant contribution in household economy supporting their subsistence. The study focuses on the share of NTFPs income in household income along with other sources. Forty-six households were sampled to carry out the targeted study. To analyze the contribution of NTFPs in household income, structured household questionnaires were designed for quantitative data and focus group discussion and key informant interview was conducted to obtain in-depth information guided by a checklist of questions. The major NTFPs found in the study area are Asparagus, Terminalia chebula, Phyllanthus, Terminalia bellerica, Edgeworthia (Argeli), Daphne (Lokta), Swertia (Chiraito), Taxus, Cinnamomum, mushrooms, firewood, and bamboo. Ninety six percent of community is involved in NTFPs collection either for subsistence or income. The study reveals that the agriculture share the highest income of 45.65% and NTFPs share 26.08% to average monthly income of household. District Forest Office and middlemen made CFUGs collect the NTFPs according to the prevailing market demand for which the collectors are paid certain amount. However, these days there is less demand of NTFPs collection as they are not getting the market for the collected NTFPs and do not have idea regarding the market demands to cultivate those products.

Keywords: Non-timber forest products, economic contribution, livelihood, biodiversity conservation, Nepal.

1. Introduction

Globally, forest resources have significant economic contribution to rural livelihood, especially to forest dwellers. The report estimates about 1.6 billion rural people dependency on forest resources to certain extent. One billion extreme poor depend partly on forest products and 300-350 million people are highly dependent on those resources for subsistence as well as income (Chao, 2012). Collection and sale of NTFPs are a significant livelihood diversification for the marginalized family supporting remarkably in their household incomes (Melaku et al., 2014; Ros-Tonen, 2000). Their dependency on these products largely increases during the period of hardships as they act as safety net for them (Anderson & Wunder, 2003).

Dependency to forest resources and their contribution to incomes vary globally as their utilization depends on their socio-economic status. People with poor economy are found to be

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Correspondence: Megh Raj Dangal, Associate Professor, Kathmandu University, School of Arts, Kathmandu, NEPAL. E-mail: megh@ku.edu.np.

involved more in the utilization of forest resources. African's livelihood is largely affected by the forest resources. The African continent's people live on less than 1.25 US dollar a day and their subsistence is retained by forest resources that provide them some economic activities (Anderson et al., 2006). Forest resources have been the sources for medicines, nutrition and other values as well along with income generation. More recently, there has been a growing interest in the economic potential of NTFPs as their prospects in poverty reduction raising their livelihood status and sustainable development have been recognized.

Millions of livelihoods are dependent on Non-timber forest products (NTFPs) at global level to overcome their basic needs. Over 50 million Indians are found to be dependent on NTFPs for their subsistence and cash income (Shaanker et al., 2004). Mulenga et al. (2011) reported the contribution of NTFPs to rural household income and food security in Zambia that has great influence over the national economy. Non-timber forest products have been contributing to forest dwellers get their poverty better of through income generation as well as supportive in household consumptions (Chikamai & Kagombe, 2002). People across the world have dependence over NTFPs in different forms as nutrition, forage, energy, medicine, fibres, resins oils (FAO, 1991), to sustain their livelihood subsistence or to generate income for their living.

Contribution of NTFPs to rural people and forest dwellers in context of Nepal is also remarkably noticeable. Certain reports have highlighted their economic contribution on rural livelihood. Still there is paucity in information and scientific records of economic contribution of forest resources in Nepal (Subedi, 2006). However, some micro-level studies have been carried out on economic contribution of overall forest products. There is no separate record for non-timber forest products' contribution. The forestry sector is considered to highly supportive in contributing to the national GDP through trade. Still the enumeration lacks many aspects of economic valuation of products and services that are generated from the forest products.

Nepal being rich in biodiversity, it shelters more than 700 medicinal plants among which 100 are actively traded. To promote their value, Nepal Government also has prioritized 30 species and has permitted 12 species for commercial cultivation and market promotion (AEC/FNCCI, 2004). It is estimated that about 10,000 to 15,000 tons of plant products of more than 100 species are exported to India annually (Edwards, 1996). There is still need of reporting the data regarding economic value and contribution of NTFPs as the data available fails to explain the definite value of non-timber forest products.

This study explores the major sources of livelihood and importance of NTFPs in their livelihood. The major objective of the study is to investigate the economic contribution of NTFPs in household income of rural people of the study area. Economic contribution is investigated through (i) share of NTFPs income in the total household income and expenditure, (ii) factors determining the engagement of household in NTFPs collection, and (iii) socio-economic determinants for the dependence on NTFPs income.

2. Literature review

Development of rural economy depends on successful trade of natural resources as remote areas hold excess space for forests. Trade of these resources generates employment to rural people that help to combat their struggle for daily needs. Forest-based activities in developing countries like Nigeria, especially in NTFPs abundant areas, facilitate people through income providing an equivalent of 17 million full-time formal job and 30 million informal jobs (Duong, 2008). Income of 80% (Jimoh, Amusha & Azeez, 2013) is generated from the sales of NTFPs.

Contribution of NTFPs in rural household economy is recognized globally. The significance of NTFPs in household income is sometimes equal to more than the school teachers' minimum wages in Central and West Africa (Shackleton, Shackleton, Buiten & Bird, 2007).

Approximate USD 90 billion per annum economy (Pimentel et al., 1997; Mahapatra & Tewari, 2005) is estimated for NTFPs in global context, of which one-third is consumed by local economy.

Economic status of people living in remote and mountainous regions is very critical. One of the easy means to raise their economic status is making them involve in trade of NTFP species. Collection and selling of NTFPs can generate employment for them, hence contributing their livelihood diversification. Poor people can make money through the sale of economically valuable species.

As reported in Nepal by Olsen (1998), 470,000 households are involved in NTFPs collection to make money. The rate of people's engagement has increased so high these days. Nepal has a long history of trade of these valuable species to India as well as to other International markets. About 10,000 to 15,000 tons of plant products are supported to be traded to India and other international markets (Bhattarai, 1997). Among the products, 20 NTFPs species (Bhattarai & Olsen, 2000) are highly demanded economically valuable products that are exported.

Non-timber forest products with high economic value could be one of the major means to raise the economy level of the country as well. As remote areas form the major part of the country, their upliftment is prime necessity. The rural development can be better enhanced by the proper utilization of natural resources. Nepal, being rich in biodiversity, has enough potentiality in rural as well as national development through the proper utilization of these resources. Revenue from forest resources is reported to be in that level which supports raising economic status of rural people and of a whole nation.

Melaku et al. (2014) through their study in Southwestern Ethiopia reported that NTFPs contributed 47% to annual household income. In Western Uganda, Jagger (2012) estimated the rural Ugandans derive 26% of total household income from forest resources & other ecosystems. High dependence on NTFPs in humid tropics of Northeast India is revealed to contribute 19-32% of total household income (Saha & Sundriyal, 2011). Heubach (2011) found that total household income is supported by 39% of NTFPs income in northern Benin. The community of China State of Myanmar is advantaged about 50% to 55% through forest income (PyiSoe et al., 2014).

The extraction of Non-timber forest products is largely increased with the recognition of its importance in all aspects of human life as well as ecologically. Besides supporting livelihood and income generation to rural communities, they have created their value in international markets as well. The unmanageable collection and use of the resources cause depletion and degradation of forest ecosystem. The increase demand for livelihood has been questionable on compatibility of NTFPs extraction and biodiversity conservation. Forest conservation efforts are being challenged, yet their contribution in subsistence and income is efficiently recognized.

3. Research methods

3.1 Study site

The field study conducted for the purpose of this research took place in community forest of Magha-Deurali at Dolakha district, Nepal. People of community forest are utilizing forest products for their livelihood for cash and no-cash income. The study conducted in Dolakha district enabled us to study awareness of user group towards the importance of non-timber forest products and mechanism of their utilization in remote areas.

3.2 Sampling

To identify the contribution of NTFPs in livelihood of community, 46 households of Magha-Deurali community forest were selected randomly. The field survey was conducted in February 2020. Household survey was carried out with the respondents on random selection and for focus group discussion, the respondents included user groups and members of community forest. Key informant interview was conducted with key personnel selected purposively.

3.3 Research design and tools

The study followed a quantitative research design complemented by qualitative design. Structured questionnaires were constructed to carry out household survey with randomly selected households. The questionnaires for household survey were administered to household head, and in absence of them, other family members having idea of NTFPs were interviewed. The questionnaires and guidelines for focus group and KII were prepared prior to the survey, but were extended when required.

3.4 Data analysis and interpretation

Both descriptive and inferential statistics were used for data analysis. Descriptive statistics including the frequency, percentages and bar chart were used to summarize the contribution of NTFPs to households' livelihoods and partly the relative contribution of NTFPs to household income. ANOVA and bivariate correlation were used to determine the factors that influence the collection and utilization of NTFPs by households. Data collected during FGD and KII were transcribed and coded. The information elicited from FGD and KII were used to triangulate the household survey tools and for interpretation of results.

4. Findings and analysis

4.1 Demographic and socio-economic profile

During the household survey, different socio-economic information was collected to determine the dependency of respondents on NTFPs income. The average family size in the study area was 4 with a minimum of 1 and maximum of 10 household members. The average education level is 3.8, among them most of the respondents were accessed to vocational education (Figure 2). Average age of the respondents is 48.48 years with a minimum of 20 years and maximum of 70 years. All households possess agricultural land to some extent. The average agricultural land size is 9.5 ropani (1 ropani = 508.72 m²). 76% of respondent's primary occupation is agriculture and 20% respondents are involved in non-farm activities (Figure 3). The socio-economic attributes of the study area are presented in Table 1.

Table 1. Descriptive statistics of household characteristics

Household Characteristics	Minimum	Maximum	Median	Mean	Standard Deviation (SD)	Standard Error
Family Size	1	10	4.00	4.326	1.989465	0.293330612
Age	20	70	49.00	48.48	11.30534	1.666880894
Education	0 (Intermediate and Above)	6 (None)	6.00	3.891	2.311596	
Land Owned	0	25	7.00	9.522	7.582844	1.118029292
Household Income (Rs)	0	35,000	5,416	7,749	8428.664	1242.738773

Figure 2. Educational status of respondents

Figure 3. Occupational status of respondents

4.2 Available NTFPs and involvement of people in collection:

The study revealed that 96% people of Magha-Deurali were involved in the collection of non-timber forest products. The main purpose of the collection was for household consumption (43%), 30% people collect them for treatment and 27% people's motive was for trade (Figure 4). Less percentage of people involvement in trade can be accounted to the lack of market knowledge and trader's information. For example, a participant (Sabita Thami, aged 40 years) involved in NTFPs collection said:

"We don't know regarding market to sell the collected products. Agents asked us to collect the products and we do the same and handover to them. We are not involved in marketing ourselves as we do not know the demand of the market."

Most of the people in the study site have normal education background and collectors are of old-aged group because of which they do not have much idea about market and its approach technique. The complexity in market chain could be the hurdle to market the collected products directly by the collectors. People are comfortable using the products for their subsistence and medicinal purpose rather than for trade. The major NTFPs contributing in subsistence and cash income are listed in Table 2. Majority of household is engaged in collection of medicinal plants and least in bamboo collection. Medicinal plants are utilized for own treatment purpose and less in trade.

Table 2. Major NTFPs available and involvement of respondents in collection

NTFPs	No. of engaged households	Proportion of Households engaged in %
Wild Fruits	21	46%
Mushroom	32	70%
Bamboo Products	19	42%
Medicinal and Aromatic Plants	45	97%

Figure 3. Involvement of respondents in collection   Figure 4. Purpose of collection

The access to agricultural land and livestock is inversely related to NTFPs collection. As they need to contribute most of their time in agriculture, they could provide very less time for NTFPs collection however, they could manage to collect fodder for their cattle and firewood for their household consumption. For example, a respondent (Tej Kumari Shrestha, 42 years) said:

“We do not have much time to get involved in collection as we need to look after agriculture and livestock we are rearing. We collect fodder for them and only firewood from the forest whenever we need.”

5. Income generated from NTFPs and other sources

The major livelihood strategies in the study are farming, non-farm activities and NTFPs collection. As shown in Table 3, income from agriculture was the major and the highest income source (45.65% share to the household income). Non-farm income is the second largest share with 28.26% and NTFPs income shares 26.08%. Agriculture being the main occupation shares the maximum income to household. The main crops grown are maize, paddy, spinach and in large quantity potatoes are produced. People mostly sold potatoes whereas other crops are limited for their own consumption only. For example, a woman (Anita Tamang, 31 years) whose main occupation is agriculture said:

“We go to forest for fodder for our livestock twice in a week. Our main occupation is agriculture and mainly potatoes are grown which we sell in the market. The income we receive from its sale ranging from Rs. 50,000-1, 50,000 which we utilize for our household needs.”

Even the income from NTFPs shares less percentage; it is supportive for hard times and insufficient agricultural production. The result corroborated with the study carried out by Maleku et al. (2014) who reported agriculture as major sources of income sharing 50% to household income. Saha and Sundriyal (2011) also revealed the dependency of tribal communities of northeast India on NTFPs that contributed 19-32% to total household income.

Table 3. Average monthly income of household through different sources

Income Source	Total Income	Average Income per Month	Standard Deviation	Standard Error	Income Share
Farm Income	1,94,200	9247.619048	10364.00594	2261.61151	45.65%
Non-Farm Income	139833	10756.38462	6109.598726	1694.497806	28.26%
NTFPs Income	22400	1866.666667	1374.001015	396.6399278	26.08%
Total Income	1,62,233	21,870.67			100%

People also admitted that they are getting engaged more in labor activities after the time of earthquake as the construction activities as they are not getting market for NTFPs. As such, a respondent (Ganesh Pakwal, 35 years old) said:

“People were involved in the collection of Chiraito including me and even cultivated the species in our own land. From it, we used to earn up to Rs. 2000 per day. But since few years we are not getting market for this product and people are diverting into labor activities and construction work is also being encouraged extensively after 2072 B.S. earthquake.”

The diversion to labor work can be inferred to payment they receive higher than NTFPs income. Insufficient market knowledge for trade and less production of NTFPs also have led them to get engaged in other wage activities and depends non-farm income.

6. Share of NTFPs income on household expenditure

Most of CFUG's education is very basic and have minimal knowledge on NTFPs trade. Involvement of respondents in NTFPs collection is maximum, but depends on third party or agents to sell the products. Direct link to the market is very difficult for them because of complexity in trade formalities. Middle agents provide less benefit return to the collectors which discourage them for collection. But some are actively involved in the collection along with trade and have earned good amount sustaining their families' necessities.

Those who receive fewer amounts, they could spend very nominal amount in food and was not so enough for other activities. Those getting larger amount have good support on expenses on food (39.13%), education (15.21%), health (4.35%) and could also do saving of 8.7% (Table 4). For example, a member of community forest user group (Bhim Thami, 40 years old) said:

“My main occupation is NTFPs collection and its trade. I have been engaged in collection since long and make some of the user groups engage too. I contact directly to the vendors in the market and sometime through agents. The earnings I have been able to spend in the education of my children and other basic activities as well are being supported.”

Table 4. Share of NTFPs income on different categories' expenses

Category	Frequency	Total Expenditure	Percentage	Actual Expense	Average
Food	18	1,91,033	39.13%	1,20,103	6672.39
Education	7	82,200	15.21%	35,554	5079.143
Health	2	15,000	4.35%	11,500	5750
Saving	4	19,000	8.70%	10850	2712.5
None	15	0	32.60%		

Those who were involved less in the collection and have very nominal knowledge about NTFPs market and their price; they could obtain very less amount and could spent earnings from NTFPs on few food items only. For example, Krishna Bahadur Shrestha (33 years old) said:

“I am involved in NTFPs collection and handover to middlemen. Middlemen do payment to us and we receive the amount without any argue as we do not have idea about the actual price so we accept whatever is given. I can spend very small amount to purchase food items like oil, salt, sugar, etc. only. The earning is not enough to spend on other household activities.”

The respondents who receive less amount from NTFPs and lack agricultural land tend more to be involved in off-farm activities. They relatively receive more amounts from off-farm activities than NTFPs collection.

7. NTFPs Dependency

One-way analysis of variance (ANOVA) and bivariate relation were carried out to survey NTFPs income against household socio-economic variables and NTFPs income against other income sources. One-way analysis of variance of the survey data shows (Table 5) shows that households carry no significant difference in NTFP income depending on different education level of participants. The analysis suggests that households with primary education yield more income than those having no education. As obvious, male headed households fetch more income from NTFPs than female headed households. Female have to look after their home and their children because of which they can spend less time in collection than males. As occupation is considered, agriculture is the main occupation of the study site; participants with major agriculture income source make less income from NTFPs than those involved in other employments. The respondents engaged in off-farm activities may partly involve themselves in NTFPs collection as the employment source can be unsecured.

Table 5. Effects of socio-economic variables on NTFPs income

Explanatory Variables	N	Mean NTFP income/Month	F-value	p-value
Education				
Vocational	14	7371.43	.821	.520
Primary	4	13250.00		
Secondary	3	3000.00		
SLC	1	1000.00		
None	24	7926.38		
Gender				
Female	25	7221.32	.211	.649
Male	21	8376.19		
Occupation				
Agriculture	36	7700.92	.345	.560
Employment	7	9814.29		

Bivariate correlation among the NTFP income and socio-economic variables is presented in Table 6. Among the explanatory variables; agricultural land ($P < 0.05$) is statistically significant and negatively correlated with NTFPs income. Agricultural land is the important factor that has major impact on livelihood which likely to reduce the dependency of local community on NTFPs. This result supports other findings as well. Babulo et al. (2008) found that households with large plots of land were less likely to engage in natural resources extraction. In our study, land owned by the communities also does not signify the dependence of the communities over the NTFPs. Even the households own land, they are not capable to utilize it for their subsistence owing to less production or the destruction of crops by the wild animals. Age is negatively correlated with the NTFPs income, as the age of the respondents is more; they are less likely to engage in NTFPs collection. Numbers of household members ($P < 0.05$) and positively correlated. More the family members, more they can harvest NTFPs.

Furthermore, Education of the respondents is negatively correlated to NTFPs income. The finding is reverse to other studies. Melaku et al. (2014), PyiSoe et al. (2014) revealed education positively related to NTFPs income. In our survey, education is negatively correlated to NTFPs income as educated people have alternative options of employment and are less likely to engage in NTFPs collection.

Farm income in the study encompasses agricultural crops income. The households having significant income through farming are less dependent on environmental income; however, there is no significant conclusion. Non-farm income is negatively correlated with NTFPs income and is statistically significant ($p \leq 0.1$). NTFPs dependency was reduced if the household have better income from non-farm employment.

Table 6. Bivariate relationship between different socio-economic factors of monthly household income from NTFP's

Variables	Bivariate relationship with NTFPs Income
Age	-.105
Gender	.069
Education	-.006
HH Size	.044
Farm Income	.991
Non-farm Income	-.189
Land Owned	.083

Significance level < 0.1, 0.05, 0.001

8. Conclusion

Farm activities are found to be major source of income to sustain the livelihood of study area followed by non-farm income. The households of the study area have been utilizing available NTFPs in the forest both in terms of subsistence and income. The study reported that people with less non-farm activities are involved more in utilization of non-timber forest products. The NTFPs like Argeli, Lokta, chiraito are used for commercial purpose whereas bamboo and firewood are used for household purpose and Pakhanved, Satuwa are used for medicinal purpose. People are employed in the processing of Argeli which is exported in Japan for making currency and Lokta through which paper is produced that is distributed across the developed countries. The communities with better access to farm and non-farm activities are found less dependent on NTFPs income.

Utilization of non-timber forest products by forest dwelling people can be boon to combat with their economic crisis and food insecurity. Numerous edible products are found in the wild which are consumed very less. It could be due to unawareness they have regarding the properties they carry. Along with it, they are unable to get in to the market requirements as they do not have access as well as knowledge to market approach. Owing to lack of capacity, they are compel to follow their middle-agents for trade which do not benefit them to the level which can improve their economic status.

Economic status of community can be better developed in case there is proper monitoring on benefits the stakeholders involved in the process share. District forest Office should be more aware on providing market knowledge and related information as the community user groups do not have prominent knowledge regarding demanding market. In case they could have good market access information, NTFPs collection can be also their one of the main occupations and should not only rely on agricultural products for their food. Awareness on economic value of NTFPs should be created on rural people so that they can utilize those resources at optimum level being conscious on their conservation.

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Rural Infrastructure and its Implication to Labor Market Participation in Jimma Zone, South-West Ethiopia

Minyahil Alemu & Amsalu Dachito

*Jimma University, Jimma, ETHIOPIA
Business and Economics College*

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Abstract

Rural economy remain the back bone of Ethiopian economy absorbing tremendous labor share while how these labor market behave in rural economy of Ethiopia is yet uncovered. Besides the appreciated role of rural access to basic infrastructure with reference to rural labor supply decision, the topic is not bold in domestic literature. Considering this inadequate attention to the topic, we tried to examine the impact of rural infrastructure provision on individual labor supply, and assess the implication with each component of rural services to household participation decision in the labor market, using household survey from Jimma zone. Our multinomial logit regression indicated that rural services like education, health, credit, market information and access to all-weather-road are important considerations with regard to individual labor supply decision in farm and off-farm activities. It would be better to enhance rural access to efficient agricultural extension as well as other basic services towards empowering rural livelihood, and ensuring economic transformation at large.

Keywords: infrastructure, labor supply, market participation, multinomial logit.

1. Introduction

Needless to say, agriculture in Ethiopia is and continues to have a destiny defining contribution in the country's economy. Much has been said concerning the rural economy in Ethiopia about its nature, contribution as well as challenges in the area. Apparently, rural economy stays back bone of Ethiopian economy absorbing tremendous labor share while how these labor market behave in rural economy of Ethiopia is yet unknown. The government is determined to narrow the infrastructural black hole in the country in terms of accessibility as well as distribution, whereas its role in smoothing rural markets (where labor is one and the most) is not yet well studied. Having this overall objective in mind, this study tried to capture the link that might exist between infrastructural accessibility and labor market participation of rural households in Jimma zone, Oromia regional state.

The study is basically concerned with analyzing the rural infrastructure accessibility and its implication for labor market participation of smallholders across sections in Jimma zone. The following specific issues have been specifically targeted:

- Identifying the available physical as well as social infrastructures;

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Correspondence: Amsalu Dachito, Jimma University, Business and Economics College, Jimma, ETHIOPIA. E-mail: dachinamo@gmail.com.

- Identifying determinants of labor market participation decisions of household; and
- Estimating the impact of rural infrastructure on the rate of labor market participation in the study area.

2. Methodology

2.1 Description of the study area

This study is limited to Jimma Zone of Oromia regional state. Geographically, Jimma zone is located in South Western part of the country, Ethiopia. According to the official report from Jimma zone's administration office in 2016/17, the zone is totally composed of twenty districts called *Woreda*. The number of population is estimated at around three million under 516,321 households.

Jimma Zone have an agro-ecological background of highlands (15%), midlands (67%) and lowlands (18%) as documented by the United Nations Development Program country report for Ethiopia (UNDP, 2014). The zone is among major coffee growing areas in the country. The Zone reliably receives good rains, ranging from 1200-2800 mm per annum; this atmosphere is very comfortable to invest in the area of agro-industry based on natural resource well-endowed by nature, as well as product produced by active and strong community (UNDP, 2014). Below is the official geographic map of Jimma zone.

Figure 1. Geography of Jimma zone

2.2 Type and source of data

In its nature the data we used was cross-sectional. The survey has used both primary and secondary data set. While the primary data were obtained from the households via structured questions, secondary data were sourced from local trade and industry offices and investment offices.

2.3 Sampling methods and sample size determination

For the purpose of the current survey we randomly took four (Limmu Kossa, Shebe Sombo, Gomma and Manna) out of twenty one districts in Jimma zone. Again proportional sample of *kebele* is arbitrarily selected from each *woreda*. At the end, households were proportionally randomly selected from each *kebele*, that were chosen from all four *woreda* listed above. The required size of sample has been determined following Noel et al. (2012):

$$n \geq \frac{N}{1+(N-1)\left(\frac{2d}{Z}\right)^2} = 390$$

Where N is population size; n represents the sample; ($d=0.05$) is chosen margin of error; $Z=1.96$ for 95 per cent confidence interval. Note that, the final draw of proportionate size each *kebele* was quite random.

2.4 Multinomial logit model specification

Labor market has an interesting and unique role in agricultural and off-farm sectors, within the wider input market in the rural economy. Timmer (1987) recognizes the agricultural labor should be commonly treated as a 'buffer' in economic development. When other sectors in the economy prosper, the agricultural sector tends to signal through releasing the work force from agriculture to other sector whereas at the time of difficulty, the sector tends to absorb more labor from other sectors. By doing so, the sector thus avoids any dramatic unemployment problems. Literature related to the institutional frameworks of rural labor markets is rare if not absent. Most studies examining the institutional setting of agricultural labor markets in the rural sector often tend to refer to developing countries while typically addressing the failure associated with the smooth flow of labor market performances and the consequent effect for the productivity and efficiency of the agricultural sector (Guancheng et al., 2012). The labor supply of the rural households is a categorical variable that can be divided into farm and off-farm activities while the two broad categories can further be split into self-employed and regular wage (salary) earners.

In order to estimate the relative share of the determinants incorporated in this study on the variable under consideration, four distinct participation choices are identified: (i) self-employed in farm sector, (ii) regular wage earner in farm sector (iii) self-employed in off-farm sector, (iv) regular wage earner in off-farm sector. In the case of the off-farm sector, one or more than one of the household members may be employed in the sectors other than farming activities either in the rural area or nearby urban area. A household is considered as a participant in any of the two sectors, if there is/was at least one family member in the household who participated (currently participating) in any of the two activities or left the family member and moved to the urban area for paid work. Given the discrete nature of the dependent variable, the appropriate model to be adopted is multinomial logit model (Cragg, 1971; Wooldridge, 2015). Since the labor supply of the rural households is a categorical variable with discrete division, we employed the approach of multinomial logit model. That is the dependent variable, labor market participation, is a categorical variable having four possible values where the i^{th} household is participating in at least one of the activities defined above.

Multinomial logit given all the individual specific covariates (x_i), the probability that the i^{th} household choose the j^{th} activity ($j=1,2,\dots,4$) such that since the households face a multiple choices, such as different activities to engage, where the order of those activities does not matter, unordered choice model is preferred which can be motivated by a random utility model. That is, for the i^{th} household faced with J choices, the utility from choice j can be given as (Wooldridge, 2013; Gujarati, 2004);

$$U_{ij} = x_{ij}\theta + \varepsilon_{ij} \dots\dots\dots(1)$$

Where U_{ij} is unobserved (latent) utility of household i from activity j , X_i are all the explanatory variables and θ stands for vector of parameters and ε is the error term having a standard logistic distribution. If the consumer makes choice j in particular, then we assume that U_{ij} is the maximum among the J utilities assuming that a household under consideration is rational utility maximizer. That means the probability that choice j is made among other choices if (Wooldridge, 2013; Cragg, 1971):

$$pr(U_{ij} > U_{ik}) \quad \text{for all } j \neq k \dots\dots\dots(2)$$

Equation (2) states that the i^{th} household can only be engaged in the activity j if and only if the utility derived from this activity is greater than the utility from other activity k keeping all else constant. The logit specification for the above equation can be given by;

$$pr(y_i = j | x_i) = p_{ij} = \frac{e^{(x_i \beta_j)}}{1 + \sum_{k=1}^j e^{(x_i \beta_k)}} \dots\dots\dots(3)$$

Where $j=1, 2, \dots, 4$,

The sum of the J probabilities should equal to one. To avoid indeterminacy, we need only to estimate $J-1$ parameters to obtain probabilities for J choice. If J is set to be 2, then it becomes the typical binary logit model. We can compute the relative risk associated with the J activity (odds ratios) as:

$$\frac{P_{ij}}{P_{ik}} = \exp(\beta_{j1}x_1 + \beta_{j2}x_2 + \dots + \beta_{jk}x_k) \dots\dots\dots(4)$$

Equation (4) is called odds ratio (the relative risk) associated with a choice of j activity. Thus, the change in the odds ratio resulting from a unit change in the k^{th} explanatory variable is equivalent to $\exp(\beta_{jk})$. From equation 4, one can compute the log of the odds ratio by converting the above equation into logarithmic form.

$$\ln\left(\frac{P_{ij}}{P_{ik}}\right) = \beta_{j1}x_1 + \beta_{j2}x_2 + \dots + \beta_{jk}x_k = x' \beta_j \dots\dots\dots(5)$$

Equation (5) implies that the log of the odds ratio is linear function of the explanatory variables and the corresponding coefficients measure the change in the log of the odds ratio associated with a unit change in the explanatory variable under consideration. Thus, given multinomial logistic distribution assumption of the error term, utility for workers engaged in the employment category is the log odd ratio given by:

$$\log it(y = j) = \log\left(\frac{p(y = j)}{1 - p(y = j)}\right) = \beta_{j0} + \beta_{j1}x_1 + \beta_{j2}x_2 + \dots + \beta_{jk}x_k + \varepsilon \dots\dots(6)$$

The above model (multinomial logit model) was estimated using maximum likelihood method. The slope coefficient captures the change in log odds of the household being in the job category j as compared with the reference category given the change in one unit of independent variable keeping all else unchanged. The statistical significance of the parameter estimates can be checked using the usual t -test.

3. Results and discussion

3.1 Descriptive statistics

3.1.1 Households' demographic characteristics

Demographic information identified for various response rates is presented in the table below.

Table 1. Demographic variables characteristics

Marital status	Freq.	Percent	Cum.
Married	327	82.37	82.37
Widowed	12	3.02	85.39
Divorced	16	4.03	89.42
Single	42	10.58	100.00
Education level			
Illiterate	140	35.26	35.26
<=6	172	43.32	78.59
<=12	48	12.09	90.68
above 12	37	9.32	100.00
Sex of HH Head			
Male	305	76.83	76.83
Female	92	23.17	100.00

Source: (Own Computation, 2019)

In terms of sex composition, the sector is dominated by male headed households where about 76.83 percent of the household heads are male while the remaining proportion is female headed. Being household head is more widely interpreted by different scholars and they attach it to economic freedom, and decision making power (Guancheng et al., 2019). In the context of Ethiopia's rural institution, female rarely become the household head, unless she is single, divorced or widowed. It is long lasting tradition in the country where farming activity is considered to be performed by male and female's role is considered as only supportive. In terms of marital status majority of the farm households (82.37 percent) are married which is followed by single (10.58 percent). The rest 4.03 and 3.02 per cent, respectively, are composed of divorced and widowed households.

3.1.2 Labor supply decision by rural households

Of the total response rate, majority (71.03%) are engaged in farm activities (including labor sharing activities as well as sharecropping), followed by off farm sector which accounts 17.36 percent of the total sample households. The remaining 7.05 percent and 4.53 percent respectively have been engaging in the regularly paid and left outside of the labor market. Farm household labor supply diversification is believed to pursue additional income-generating activities at the farm-household level, including participation in livestock ranging, local non-farm activities, and off-farm activities whereas in the study area households are concentrated in the farm sector where the portion of farmers who are looking for alternative job outside their farm is relatively rare. Detail is provided hereunder:

Source: (Own sketch, 2019)

Figure 2. Labor supply decision of the households

The most straight forward implication of labor supply diversification of farm households is that farmers look for generating a portfolio of income/wealth from sectors with dissimilar degrees of expected risk-returns combination, seasonality and liquidity so that they can be able to adjust their output mix accordingly to cop up with different seasonal hardships in rural area. According to Hoff (2000) farm diversification would facilitate the allocation of household scarce and productive assets among different income generating activities which may be in turn notable from village-level diversification, where households become more specialized in a given line of work over time, which in turn provide wider range of goods and services that would contribute to the economic development.

3.1.3 Rural access to infrastructures

It is worthwhile to mention that the two types of infrastructures (hard and soft) are like two sides of a coin that it is difficult to think of one without insuring the other. The survey result on the accessibility of both forms is given below.

Table 2. Infrastructural distribution

Response	Freq.	Percent	Cum.
No access to road	109	27.46	27.46
Access to road	288	72.54	100.00
No access to School	39	9.82	9.82
Access to school	358	90.18	100
No access to credit	31	7.81	7.81
Access to credit	366	92.19	100.00
No market information	107	26.95	26.95
Have market information	290	73.05	100.00

Source: (Own computation, 2019)

Evident from table 2 is reveals that, bout 27.46 percent of the total response rate have no access to all weather roads while the remaining 72.54 per cent do. In terms of access to schooling, around 10 percent of the farm households have no access to school while the remaining 90 per cent have been accessing it. Regarding access to formal credit facilities, around 8 percent of the household have no access to the service while looking actively for it. For aggregation purpose, households who have no demand to the service are categorized as if they have access to

the service. Accordingly, about 92 percent of the households can be able to fulfill their financial constraints from the formal financial market (where most of them have access to microfinance institutions and majority of those who are treated here accessing the service were still no access to formal banking scheme).

Concerning market information accessibility which is proxied by the availability of mobile phone at least by one of the family member, irrespective of the availability of telecommunication network in the area, around 27 percent of the sampled households have no access to the market information while the remaining 73 per cent do access the same. In this regard, it is undeniable that information plays profound role in improving rural livelihood as farmers require updated information concerning different markets such as inputs and produce markets, as well as production and processing technologies that area available to their disposal. In general, improved access to information help community organization to strengthen local services provision and develop social capital.

Table 3. Tabulation of access to infrastructures and labor supply decision

<i>Infrastructure</i>		<i>Labor Market Participation Decision</i>				
1. Access to Road		Non participant	Farm	Paid job	Off farm	Total
<i>No</i>		5	77	5	22	109
		27.78	27.30	17.86	31.88	27.46
<i>Yes</i>		13	205	23	47	288
		72.22	72.70	82.14	68.12	72.54
2. Access to School						
<i>No</i>		2	27	4	6	39
		11.11	9.57	14.29	8.70	9.82
<i>Yes</i>		16	255	24	63	358
		88.89	90.43	85.71	91.30	90.18
3. Access to Credit						
<i>No</i>		0	22	5	4	31
		0.00	7.80	17.86	5.80	7.81
<i>Yes</i>		18	260	23	65	366
		100.00	92.20	82.14	94.20	92.19
4. Access to Mkt inf.						
<i>No</i>		5	86	4	12	107
		27.78	30.50	14.29	17.39	26.95
<i>Yes</i>		13	196	24	57	290
		72.22	69.50	85.71	82.61	73.05

First row has frequencies and second row has column percentages

Source: (Own Computation, 2019)

Out of the total farm households who were outside of the labor market, 27.78 per cent had no access to all-weather road and the rest 72.22 percent have access to the same infrastructure. Out of the total farm households in the study area who have been engaging in the farm sector 72.7 percent have access to road whereas the rest 27.3 percent have no access to it. In addition, 32 percent and 18 percent of the sampled household from off farm sector and paid job respectively have no access to all-weather road.

Regarding access schooling, around 9.6 percent of households engaged in the farm sector didn't have access to schooling. On the other hand around 89 per cent from the non-labour force, 90 percent from farm sector, 86 percent from paid and 91 percent from off-farm sector have access to education. It indicates that individuals from farm sector are relatively more vulnerable

in terms of being outside of schooling in particular and any infrastructure in general. It farther implies that there is uneven distribution of infrastructural facilities across different sectors in rural economy and might be the case that those who have enough access to those infrastructures were the one who were exposed to other alternative sectors and who could be able to look for jobs outside the farm sector. In a like passion, access to market information varies with labor supply decisions of the farm household in the study area as market information is concentrated in the off-farm and regularly paid job (about 83 percent and 86 percent of farm households in each sector respectively have access to market information). In contrast, majority of households who were outside the labor force (72 percent) didn't have access to market information which is followed by the farm sector (70 percent).

3.1.4 Labor market participation decision of households

Factor market fails for many reasons where some of them are demand side factors while others are supply side factors. These imperfections are striking when it comes to rural area. These factors differ with sectors. For instance, low level of education and skill are the main cause in farm sector and it is no more an impending factor in the paid job. The responses from the current survey are summarized in the table below.

Table 4. Impeding factors of alternative job in the study area

Impeding factors	<i>Farm</i>	<i>Off-farm</i>	<i>Paid job</i>
<i>The level of education and skill</i>	218	15	2
<i>No info. about alternative job</i>	53	52	-
<i>Risky to leave current job and search for alternatives</i>	86	41	9
<i>Limited access to land and capital</i>	-	10	6
<i>Preference to stay in one's current residence</i>	98	25	-
<i>There is no alternative job opportunity</i>	186	62	20

Source: Compiled from HH Survey Response (2019)

The demand and supply side factors holding the rural households from looking alternative jobs around their residence and nearby urban areas are discussed in this part. One of the factors that limited farmers from engaging in alternative jobs is the absence of alternative jobs in the rural area. In most of the rural area there are no alternative off-farm jobs as well as formal (paid) job. This implies that there is a demand side constraint in the rural area that most of alternative off-farm jobs are concentrated in the urban area so that people are obligated to move from rural to urban center for better job. From the economic theory perspective, farmers' labor supply decision is based on their objective of utility maximization so that they divide their labor time among different sectors (farm, off-farm and paid jobs) so that the expected marginal return from all the alternative sectors remain equal. Nevertheless, farmers are believed to be risk averse so that they allocate less time to risky sector and more time to less risky sectors (though farmer's version of risk definition may be different). Accordingly, significant portion of farm households in the study area who have been engaged in the farm sector prefer to stay in the sector that they fear taking any risk in searching alternative jobs rather than farming.

3.2 Evidence from multinomial logit analysis

Before we directly approach to the regression our logit specification, we have examined all of the validity and reliability conditions and none of them was suggested invalid. Our test statistics are presented herewith for convenience.

Table 5. Diagnostic test results, Stata ver.14

Test statistics	Null Hypothesis	Values	Prob.	Null hyp.
Mean VIF	Multicollinearity	1.04	-	<i>Rejected</i>
Lawley chi2	Same correlation matrix	73.18	0.00	<i>Rejected</i>
Hettest	Constant variance	25.91	0.00	<i>Rejected</i>
Breusch-Godfrey LM	No serial correlation	0.001	0.97	<i>Accepted</i>
Cook's D	Outlier	0.0026	-	<i>Rejected</i>
Link test				
_hat	No omitted variable	0.31	0.77	<i>Accepted</i>
_hat-squared		0.14	0.51	
D-Watson stat		2.01	-	

Source: (Own Analysis, 2019)

This section presents the potential determinants of rural household labor supply decision with reference to Jimma zone. Table 6 below reports the results from our regression.

Table 6. Determinants of labor market participation decision (Multinomial logit model)

Lmp	Coef.	Std.Err.	t- value
Age	-0.343***	0.116	-2.95
Age squared	0.004***	0.001	3.21
Sex of HH head	0.844	0.608	1.39
Marital status	-0.030	0.281	-0.11
Education	1.314***	0.256	5.12
Family size	0.260	0.210	1.24
Family labour	-0.769**	0.305	-2.52
Access to road	0.305	0.612	0.50
Dependency	-	0.019	-1.25
Access to credit	14.934***	0.436	34.27
Access to Ext.	0.0212	0.613	0.03
Access to mkt in	0.178	0.577	0.31
Remittance	0.000***	0.000	3.88
land_sz	0.068	0.130	0.52
Age	0.036	0.127	0.28
Age squared	0.000	0.001	-0.15
Sex of HH head	-0.273	0.593	-0.46
Marital status	0.319*	0.179	1.78
Education	1.415***	0.207	6.83
Family size	-0.265	0.174	-1.52
Family labour	0.546*	0.310	1.76
Access to road	1.496**	0.604	2.48
Dependency	0.020	0.016	1.25
Access to credit	-0.722	0.632	-1.14
Access to Exten	0.0962	0.353	0.272
Mkt info	0.676	0.503	1.34
Remittance	0.000	0.000	-0.52
land_siz	0.086*	0.151	0.57
Age	0.067	0.112	0.60
Age squared	-0.001	0.001	-0.53
Sex of HH head	0.461	0.479	0.96
Marital status	0.127	0.208	0.61
Education	2.481***	0.254	9.77
Family size	-0.175	0.189	-0.92
Family labour	0.234	0.273	0.86
Access to road	0.313	0.477	0.66

Dependency	0.012	0.016	0.78
Access to credit	0.155	0.672	0.23
Access to Exten	0.112	0.613	0.03
Access to mkt info	0.915*	0.473	
Remittance	-0.0620*	0.124	-0.26
Constant	-12.164***	3.248	-3.75
Mean dependent var	1.373	SD dependent var	
Pseudo r-squared	0.316	Number of obs	
Chi-square	1890.588	Prob > chi2	
Akaike crit. (AIC)	552.885	Bayesian crit. (BIC)	

*** Significance at 1 per cent;

** significance at 5 per cent;

* Significance at 10 per cent

Source: Own estimation (2019)

The overall significance of the model is assured given the conventional Wald ch2 test and the null hypothesis that all coefficients are jointly zero is strongly rejected in favor of alternative at one percent significance ($p=0.00$). The dependent variable (labor force participation) is a categorical variable having 4 values where the four values are types of the sectors that rural households could possibly engage (non-participant, farm sector, off-farm sector and regularly paid job) where the first is taken to be the base category so that the participation of the households in the three of the remaining sectors are analyzed by comparing with the base categories.

Households in the study area are subdivided into four groups (those individuals currently not working, individuals engaged in farm activities, and off-farm sector as well as individuals who engaged regularly at paid job) and hence, the factors determining labor market participation in each group has been estimated using multinomial logistic regression model and the result is reported in the above table (Table 6).

3.2.1 Impact of rural infrastructure on household labor supply decision

(a) Labor supply decision in farm sector

In this study we assumed that farmers who are engaging at own farm plot as well as who have been engaged in the labor sharing activities are put under this category. Therefore, those under this category are basically engaged in self-employment in his/her own farm and for aggregation purpose, those individuals who are working on other's farm in terms of sharecropping are also treated as farmer who are supplying their labor in farm sector. Based on the estimates reported above, access to different types of infrastructural facilities such as road, credit and market information have positive effect on the likelihood of farmers joining farm sector, though access to credit facilities is the only statistically significant variable. This demonstrates that in order to boost the likelihood of farmers to join the sector, financial institution have tremendous influence in smoothing financial constraints facing the farm household. This relation has been highlighted in previous works like, Fall and Magnac (2015), and Pollard and Heffernan (1983). More importantly, credit arrangement for investments is vital to encourage rural entrepreneurs make investment decision so as to create economic opportunities, and purchase agricultural inputs and working capital. Suggestive of the role of credit in agriculture, the global food price crisis has moved agricultural finance on top of the Africa and international development agenda. According to Goodwin and Holt (2002) access to financial market irrespective of the type of farm households engaged in the sector is a key so as to unleash and utilize the continent's potential in the sector as well as ensuring food self-sufficiency.

Age of household head has negative contribution to the likelihood of households' engagement in farm sector which is happen to be significant at one percent level. On the other hand, age square has a positive contribution on the sector. The possible explanation for this is older household heads are relatively intensively engaging in the farm sector and those who are relatively young are those engaged in off-farm activities as well as in regular full time work. Aging labor forces in agricultural sector is the trend in most of the countries in the world (Guancheng et al., 2015). This has its own pros and cons. On one hand aging farmer having more experience and accumulated knowledge regarding the farming activities, their soil nature and related matching of the crop. On the other hand, farming demands physical strength throughout the farming process and those who are middle aged are strong and relatively productive in the sector. It is also argued in terms of the farmer's acceptance of the new technology, old people are relatively conservative and reluctant in accepting new technology compared to the young.

Education level of the household head and family labor are also significant considerations with likelihood of labor supply in the farm sector where the former is significant and positive at one percent level, while the latter has negative and significant at five percent level. The positive impact of education is intuitive as the household head who is relatively young is the one with more years of schooling and ready to supply his or her labor in the sector as compared to the older one. Concerning family labor, it has negative sign implying that one with larger family size tends to get out of the sector.

(b) Labor supply decision in off-farm sector

Rural households face diverse challenges in coping up with rural poverty and living condition. The problem is severing when it comes to Africa (UNDP, 2014). Cognizant of this fact, households in these countries espouse different livelihood strategies. This strategy holds diversifying the income base of household and avoiding sole dependency in the rural agriculture sector (Stefan & Barret, 2011; Sumner, 1987). One potential means would be to enhance participation in off-farm sector which could only be realized if farmers have access to different assets that paves ways to off-farm sector. In our model above, different household specific variables are estimated as potential determinants in affecting household's decision to join this sector while four variables are identified as statistically significant in determining smallholders' engagement in the off-farm sector where access to road is one. Access to road is positive and significant in increasing the likelihood of farm households' decision to participate in this sector.

(c) Labor supply decision in formal (paid) job in farm and off-farm sectors

Household heads who are engaged in rural regular paid job (on hired contractual or permanent basis) are relatively non-existent in the area. Among the modeled variables under this group of employment, only four are significant in determining small farm households' engagement in this sector. These are level of education of the head, market information, remittance and land size. Accordingly farmers with higher education tend to participate outside of their own farm looking for regularly paid work as compared to illiterate farmers. This is not surprising as education intensify the chance of a household to look for alternative work (Juvančič & Erjavec, 2005; Kimhi, 1994). On the other hand, land size is one of the pushing factors as it has negative and significant impact. Households with large farm size tend to participate in the farm sector as well as in the off-farm sector and less likely to participate in the paid job.

4. Conclusion and policy directions

Rural households in the study area are concentrated in the farm sector while rarely participating in the off-farm and regularly paid sectors. Among others absence of alternative jobs outside the farm sector in the study area is the most hindering factor that restricts farmers to limit themselves in the farm sector. Farm households' risk aversion strategy in terms of diversifying

their income base from farm sector is highly limited in the study area as farmers have limited access to the alternative job in off-farm as well as in the regular and formal paid sectors.

More than one-third of the total response rate indicated the lack of access to rural-all-weather road from the settlement area. Besides, education, information, health and other services are not sufficiently provided. However, the provision of credit service was suggested fair. Based on the inferential analysis, accesses to different infrastructural facilities (such as road, credit service and information) contribute significantly for households' decision to supply labor in the farm sector. Level of education on the other hand increases the likelihood of labor supply in the farm sector where as family size acts negatively to the decision of households in engaging in the sector.

Accesses to road, the level of education, family labor and marital status of the household head were important with reference to off-farm labor supply decision. Except family labor, other three variables contribute positively to the labor supply decision of the household in the off-farm sector. One implication from this finding is that, enriching rural area in terms of education and training would pave the way to off-farm sectors and critical for income diversification of farm household in the study area. On the other hand, households with large family labor (large family size where most of them are participating in the labor supply) acts as pushing factor in the sector implying that households with large family labor prefer to stay outside of the labor force or search works in the paid job (as it is positive in the two cases and negative in the remaining two cases) rather than off-farm sector which implicitly show that family planning could contribute positively to the households' labor supply decision in the off- farm sector.

As labor service is not separable from the individual, there are factors preventing individuals from looking for alternative jobs. Rural people prefer not to migrate for institutional and social reasons as they are reluctant of losing long term established relations with their neighbors. Therefore, providing alternative jobs in off-farm sector in the rural area has paramount importance rather than expecting rural people to migrate for the search of better job. Besides, the absence of alternative and better job in their surrounding is the reason why rural households limit themselves in a single job while some think that it is relatively risky to shift from the job that they are currently familiar with and looking for alternative job. Therefore, it would be better for the government to create conducive environment in rural area which should be accompanied with awareness creation.

Remittance and land size of the rural households negatively affect rural households' participation in the paid job. Households who had access to external financing from extended families were not looking for alternative jobs outside their own farm. Besides, owning relatively large land size hinders rural households from looking for alternative jobs. Given the positive and significant effect of different infrastructural supply (such as access to road and information facilities) it is advisable if the government pays attention for enriching rural areas as a means of widening the alternative jobs available for rural households in the study area. Besides, granting land ownership right to the households in the study area boosts households' labor supply decision in the farm sector as well as attracts others from other alternative sectors towards the farm sector so that the local as well as regional governments need to work towards improving farmers' security related with access to farm land.

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How Different Forms of Corruption Affect the Economy of Bosnia and Herzegovina: A Research Project

Sabina Komić & Nataša Tandır

*International Burch University, Sarajevo, BOSNIA AND HERZEGOVINA
Faculty of Economics and Social Sciences*

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Abstract

Corruption is globally viewed as dishonest and illegal behavioral activity that has negative influence on the overall economic and social environment. The aim of this research paper is to identify and examine effects of bribery, fraud, and favoritism on the economy of Bosnia and Herzegovina (B&H). The research was conducted on the territory of B&H including two hundred economic experts. The objective was to collect participants' opinions and experiences with corruption and its forms. Secondary data was extracted from books, journals, articles, and web pages. The findings show that majority of the participants encountered corruption but they did not report because they were mainly afraid of the illegal consequences they may face. The most widespread corruption form in B&H is bribery and the participants emphasized some of the effects of corruption on the economy such as uneven distribution of wealth, inefficient allocation of resources, lower growth rates, unfavorable business environment, demotivation of workers, slower process towards the European Union (EU) membership, etc. I concluded that as B&H needs more time to become EU member, it loses the opportunity to establish fair and efficient trade, higher EU protection, larger budget, etc. Also, I realized that there is a high presence of corruption in B&H which does not decrease from year to year and appears in both public and private sector. This also destroys the legitimacy of the state and the quality of public services as well as the economic growth of B&H.

Keywords: corruption, corruption forms, B&H, economy.

1. Introduction

According to the previous researches corruption has been occurring in society ever since, but it has only been studied since 1995. It became a globalizing phenomenon that is rapidly expanding. Currently, the main focus of studies is to determine the negative effects of corruption on the countries and their economies as well as on the international institutions. Corruption and its forms have long been perceived as key barriers and obstacles for economic and social development of each country because these activities destroy national and international economic relations by reducing working ability and motivation, creating unfavorable business environment with unfair advantages, undermining the rule of law, causing political instability, etc.

It is evidenced that the countries with a high level of corruption do not prosper as fully as those countries with a low level of corruption because corrupted economies are not able to

function properly due to the prevention of normal functioning of the natural laws of the economy and as a result the entire society suffers.

The research paper will focus on the effects of different forms of corruption (bribery, fraud, and favoritism) on the overall economy of B&H. There are two main objectives of this research paper. The first objective is to measure the awareness of the selected participants regarding the presence of corruption. The next objective is to examine the opinions and experiences of the participants regarding the effects of mentioned forms of corruption on the economy of B&H. For the research purposes, I will use primary and secondary data. Primary data will be collected through the survey that will be distributed to two hundred economic experts. The research will be conducted on the field of B&H. The data collected from the survey will be passed to Microsoft Excel and SPSS where I will conduct many statistical tests. Secondary data will be derived from different scientific sources.

There are few reasons why I chose to research this topic. One of them is that I wanted to learn more things about the causes and forms of corruption because in many cases the majority of the Europeans associate B&H with this term. Many Bosnian people also heard about corruption and its forms because they are mainly involved in these activities (directly or indirectly), but just small percent of people is aware of the negative influence over the economy of B&H.

This research proposal will be drafted in a standardized form with eight main parts: Abstract, Introduction, Literature review, Research questions and model, Methodology, Data and findings, Conclusion, and References. In the “Literature review” part the main terms regarding corruption, bribery, fraud, favoritism, and economy of B&H are explained. The fourth part, “Research questions and model”, represents a model with relations as well as the hypotheses of the proposal. The next section, “Methodology”, explains data collection and methods that are used for a statistical analysis in order to provide concrete and significant results of the research paper. All these results are listed in the next part which is called “Data and findings”. The seventh part of this research proposal “Conclusion” explains all the findings and benefits of the research. In the “References” part, I listed all bibliography I used for my research proposal.

2. Literature review

For the purpose of this study, great number of published papers was used and based on this, the research model was proposed. The review is going to provide basic insights in up to date information regarding to corruption and its forms, the effects of these forms, as well as economic situation of Bosnia and Herzegovina.

2.1 *Definitions and concept evaluation*

2.1.1 *Corruption*

Brooks, Walsh, Lewis & Kim (2013) state that corruption is variously interpreted term due to the many scientific fields e.g. economy, policy, and law that examine this term from different context and perspective. As a result, there is no ultimate definition of the term, it is rather viewed as a complex phenomenon that has plenty causes and effects. Corruption is seen as an emotionally loaded idea that guides to some general judgement.

They also argue that corrupt behavior is not recent phenomenon, but the level of this misconducts increased in the last century due to the: increased international trade, differences in economic development between the countries, political and marketable monopolization, lack of leadership, cultural diversification, lack of education, lack of international laws reforms, materialistic desires, and similar. According to Milovanović (2001), corruption derived from the

Latin word “*corruptio*” which means bad and evil behavior. He also claimed that the rules of the society are crucial when defining the corrupt behavior, but they are still not specific enough to provide us with the concrete definition. On the other side, Sumah (2017) indicates that corruption derived from the Latin word “*corruptus*” that represents the abuse of a trusted and powerful position (e.g., judicial or executive) with an aim to obtain certain kind of illegal benefit.

According to the Transparency International (2018), the national corruption level did not change since 1997. Unfortunately, in the following years, the annual corruption index of the countries located all around the world may even increase due to the democracy crisis. The Chair of Transparency International, Delia Ferreira Rubio said: “Corruption is much more likely to flourish where democratic foundations are weak and, as we have seen in many countries, where undemocratic and populist politicians can use it to their advantage”. Aside from the United States, Australia, Canada, and some European countries, the rest of the world is beset by corrupt behavior. Africa and Asia are the most corrupt continents. European countries are dominating within the very clean countries in terms of corrupt behavior in 2018. B&H is ranked on the 89th place and since 2015, the score of B&H did not change, there was just a small increase in 2016 when the score was 39. The neighboring countries of B&H had better rank, i.e. Croatia is ranked on the 60th place, Montenegro on the 67th place, and Serbia on the 87th place.

Berg (2001) states that there are two ways to measure a corrupt behavior and those are objective and subjective measure. An objective measure is based on the data that can be verified and proved e.g. audit reports of corrupt behavior. A subjective measure is based on the surveys where participants are asked about their perception and experiences with corrupt behavior. Kaufmann, Hellman, Jones & Schankermanm (1999) argue that the only way to overcome the limitations of these two measures is to use the aggregate indicators which combine different forms of subjective and objective measures. The aggregate indicators became popular since 1990 in order to provide more relevant corrupt behavior assessment. There are many advantages from the usage of these indicators and those are: wider country coverage, reduction of errors and biases, and so on. Other names for these indicators are “second-generation measures” and “composite indicators”.

Pasculli and Ryder (2019) indicate that corruption became a global phenomenon and global crime that rapidly expands all over the world in a way that corrupt practices available in one country can be expanded to more countries – geographical extension and financial magnitude. They also state that countries with a high level of corruption do not prosper as fully as those countries with a low level of corruption. The proof for this is that the average income in countries with a high level of corruption is about a third of that of countries with a low level of corruption, which means that corruption is perceived as an obstacle for economic and social development. Corruption causes inefficient allocation of resources, uneven distribution of wealth, presence of shadow businesses, poor public services, lower quality of products, etc.

Alt and Lassen (2003) state that the causes of corrupt behavior can be divided into six different categories: economic, geographical, cultural, demographic, political, and bureaucratic (also called judicial) category. All of these categories represent different reasons that can cause a corrupt behavior, but the majority of these reasons are correlated or they influence one another. Also, these reasons vary from study to study, so there is no specific classification that is acceptable and used by all researchers.

Dimant and Schulte (2016) conducted a research that included insights from economics, criminology, and psychology, a corruption became a focal point on majority of political agendas. Today’s society puts a pressure on governing bodies to fight against the spread of corrupt behavior because the presence of this behavior has the negative influence on the overall environment. A corrupt behavior is a threat to the economic growth of developed and developing countries, on foreign direct investments (FDI), productivity of the firms. Such behavior increases

the inequality within society, induces immigration of highly skilled and educated people, as well as effects social norms and values.

2.1.2 *Forms of corruption*

Deininger and Mpuga (2005) identified five main forms of corruption: bribery, fraud, favoritism, extortion, and embezzlement. Bribery is the most present form of corruption and it is defined as “the payment of money or other goods in kind that is provided or taken within a corrupt relationship”. A bribe can be paid in certain amount of money, fixed percentage of contract, or in some other financial forms. Majority of the bribes are paid to the public officials that are in positions to make the contracts for the state so they have a power to distribute the favors and benefits to a person who gave bribe. Lowenstein (2005) states that the bribery can become a dominant act of the corruption and this case is known as the “black core”. There are some situations when the black core is not accorded as harmful act because there are no identified victims which are directly affected with it which is not the case with theft, murder, and so on. The corrupt and bribery acts can have an impact on the law, taxes, market and by this way disperse the negative effect on more victims with the lack of visibility. Oyani and Frederick (2019) argue that bribery is one of the most dangerous form of corruption that hurts the society especially the poor communities as well as it hampers the development of these communities. Bribery also undermines the economic growth and represents an obstacle to poverty alleviation and good governance. Sometimes, bribery can worsen conflict and insecurity in the country by destroying national and international economic relations. When there is a high presence of bribery in a country, the whole economic development of that country is slowed down due to demotivation of workers, unfavorable business environment encouraged by unfair advantages and anticompetitive practices, lower quality of public services and officials, and so on. Bribery also causes inefficient allocation of resources, lower growth rates, reduced production levels and business competitiveness.

According to the Transparency International (2018) and the report called “People and corruption” every fourth participant said that it was engaged in bribery while accessing some public services such as medical care, school, religious centers, court, and so on. The worldwide participants perceive the European Union as the region with the lowest bribe activity. The most bribery activity is recorded in Yemen (77%), India (69%), Liberia (69%), Vietnam (65%), and Mexico (51%). On the other side, the least bribery is recorded in the United Kingdom (0%), Japan (0%), Botswana (1%), Sweden (1%), Portugal (2%), and France (2%). It is perceived by the respondents that B&H had a bribery rate of 27%, Serbia 22%, and Croatia 10%.

Brooks, et al. (2013) state that fraud represents situation when something valuable is obtained or certain obligation avoided through deception. Since 20th century, fraud is constantly spreading and it is considered as serious criminal offence. Fraud embraces different kinds of conduct, including individuals who make false claims to corporations. Every fraud involves cheating, dishonesty, and swindling. When it comes to the factors that cause fraud, they can be presented in so called “fraud triangle” that includes rationalization, opportunity, and pressure. There are some other causes besides fraud triangle such as high personal debt, living beyond income, outrages gambling, desire for progression, and so on.

Moncarz, Moncarz, Cabello and Moncarz (2006) argue that the most present fraud is related to finance and accounting. This kind of fraud may negatively affect the true profitability of the fraudulent company, or even cause a collapse of that company as was the case with Enron, but it can also affect the whole financial markets, industry profits, investors, products surplus, and the overall social welfare.

membership application to the European Council of the EU on 15 February 2016. Since that year, the European Commission annually assess the applicant's ability to meet Copenhagen criteria and then adopts its opinion known as "Commission Opinion on Bosnia and Herzegovina's application for membership of the European Union". According to the Current Opinion that dates from 29 May 2019 B&H does not still fulfill the all Copenhagen criteria and in order to become the EU member, B&H has to fulfill it. One of the highest problems for B&H is related to the corruption level in B&H and organized crime. The country faces with these problems due to the lack of coordination and cooperation between institutions, as well as not harmonized legislation across B&H.

The country has the gaps in legal and institutional framework that govern prevention of corruption, while the law agencies are vulnerable due to the political interference. Also, the country's sanctions for corrupt activities are not so effective, which induce higher corruption level. The everyday life of Bosnian citizens is affected by the corruption because it is widespread at all government levels that influences education, health, employment, and other systems. In order to become the EU member, the country has to fight against these problems European Commission (2019).

3. Hypotheses and research model

This research includes bribery, fraud, and favoritism as the variables that are influencing the economy of B&H. These variables are chosen based on the previous research studies where they are recognized as the barriers of economic growth. According to the European Commission's report these variables are also recognized as the obstacles to join the EU.

The research will have three research questions:

Research question 1: How presence of bribery affects the economy of B&H?

H01: There is no effect of presence of bribery on the economy of B&H.

H11: There are possible effects of presence of bribery on the economy of B&H.

Research question 2: How presence of fraud affects the economy of B&H?

H02: There is no effect of presence of fraud on the economy of B&H.

H12: There are possible effects of presence of fraud on the economy of B&H.

Research question 3: How presence of favoritism affects the economy of B&H?

H03: There is no effect of presence of favoritism on the economy of B&H.

H13: There are possible effects of presence of favoritism on the economy of B&H.

Figure 2. General scheme of the research

4. Methodology

The research will be conducted on the field of B&H including two hundred economic experts that will answer on the delivered survey questions. This means that I will use non-probability sampling where I will focus on special population through the data collection process. The survey will be created using Google Forms with an aim to target participants' opinions, experiences, and knowledge regarding the effects of corruption on the economy of B&H. The data collected from the survey will be primary data and this data will be passed to Microsoft Excel in order to decode file for the SPSS analyses. These analyses will be conducted using different statistical tests: Descriptive Statistics, Comparing Means (one-sample t-test), ANOVA, Chi-square test of independence, Correlation analysis (bivariate and partial correlation), and Multiple regression.

The process of data collection will have two aims. The first aim will be to measure the awareness of the selected participants regarding the presence of corruption and its forms in B&H e.g. their encountering with corruption, identification of places where the participants encounter corruption, effects of corrupt activities on their everyday life especially on their job, list effective methods to fight against corruption, and so on. The second aim of the survey will be to examine the opinions and experiences of the participants regarding the effects of these three forms of corruption on economy of B&H and the application process of B&H for the EU membership. It is important to highlight that while collecting the data, the survey will provide certain information that can help the participants in the future to effectively fight against corruption. Even though that the survey will be anonymous and confidential, the whole process of data collection can be limited due to the participants' disinterest to fill the survey because they think that they will face certain consequences. Secondary data will be derived from different scientific sources such as books, journals, articles, web pages and it will be used for writing the literature review.

5. Expected results

It is projected that the data analyses will prove that all mentioned forms of corruption (bribery, fraud, and favoritism) have negative effect on the Bosnian economy and EU membership process of B&H. It is also forecasted that the majority of the participants say that they encounter

some corruption form in the past five years either being directly or indirectly involved in such unethical activity. As the main causes of corruption, it is projected that the participants identify ineffective prosecution and legal framework in B&H, low income level, lack of knowledge, etc. Also, it is forecasted that the majority of the participants say that corruption level increases from year to year. Some of the effects of corruption presence that participants may emphasize are slower economic development, uneven distribution of wealth, inefficient and unequal allocation of resources, unfavorable business environment, demotivation and disrespect of workers, and slower process towards the EU membership.

6. Conclusion

The aim of the study will be to determine the effects of selected corruption forms on the economy of B&H. Data will be collected from the primary and secondary sources. The primary data will be collected through the survey. The sample will be comprised from two hundred economic experts located in B&H. Data will be processed and analyzed with usage of Microsoft Excel and SPSS. The secondary data will be collected from the scientific and professional literature. It is expected that the findings will show that majority of the participants encountered some corruption form but they did not report such activity.

Also, it is projected that the selected participants are afraid to report some corrupt activities due to the illegal consequences they may face. Majority of the participants will also think that they do not have power over corruption in B&H so they accepted “the reality” in which they live so they are forced to even work in corrupt communities in B&H, or they are leaving B&H to find job in some foreign countries. As in the previously conducted researches, it is expected that participants say that the level of corruption increased in comparison with previous years due to the insufficient fight against corruption from the side of public institutions in B&H and ineffective prosecution and legal frameworks.

Findings will probably show that participants are aware of the negative effects of every corruption form and that they realize that the presence of corrupt activities slower economic growth, distributes wealth unevenly, allocates resources ineffectively, creates unfavorable business environment, leads companies to collapses, demotivates workers, etc. The participants also may express their understanding of the strict EU policies and regulations that are against every corruption form which means that B&H cannot enter the EU until corrupt activities are reduced to minimum level. It is also projected that the participants will show that they are familiar with the benefits that EU membership can bring to B&H in order to improve the overall economic, political, and social situation in B&H. Therefore, we can conclude that there is a high presence of mentioned corruption forms in B&H which does not decrease from year to year and appears in both public and private sector.

The presence of these unethical activities has negative impact on the overall economic and social environment in B&H which slows down the economic development as well as the process of B&H to join the EU. As B&H needs more time to become EU member, it loses the opportunity to have fair and efficient trade based on common goods/services regulations, the same external and no internal tariffs and quotas, regulated prices, larger customer base, free movements (goods, services, persons, and capital), EU protection, budget, etc.

This research paper will bring benefits to the several key groups. The study may help people and organizations to better understand the negative effects of corruption on the overall economic environment in B&H, but they will also realize that there are some things that they can do to reduce this unethical activity e.g. report every activity that has corrupt elements. In order to fight against these activities, people will be able to get familiar with all forms and causes of corruption. People interested in this research will be able to understand the application process to

join the EU and to realize in which stage B&H is now. Also, they will expand their knowledge regarding the benefits of the EU membership.

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