Innovations

Potential impact of covid-19 on economy in Ethiopia: A case of micro enterprises in West Arsi Zone

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Abstract

The first case of covid-19 disease is confirmed on December 8, 2019, in China Wuha City and within short period the virus is spread throughout the world and resulted multi-dimensional effects. The aim of this study is to assess the potential impact of covid-19 on microenterprises' income in West Arsi Zone of Ethiopia. By using multistage sampling techniques350 microenterprises are sampled from 7 Wored as of the Zone. Ordered Log it Model was employed for estimation. The result shows that covid-19 outbreak has significant positive impact on enterprises' income. The regression result reveals that cut-off of one or more business type/production of microenterprises, decreases in customer, decrease in product due to fear of covid-19, displacement of workers from their job and product distribution and marketing challenges are significantly play vital role in decline of enterprises' income that associated with the pandemic. Therefore, development interventions should give emphasis to support microenterprises especially those participated on vulnerable business area.

Key Words*: 1.covid-19, 2.Microenterprises, 3.Ordered Log it, 4.Outbreak, 5.Pandemic*

1. Introduction

1.1. Background of the Study

In different period, the world hurts from the outbreak of various pandemic such as Cholera pandemic in early 19th century and Influenza pandemic (Spanish Flu) in early 20th century. These outbreaks wereimplying the loss of life in large numbers. However, the outbreak of these pandemics not only threatens people's lives and safety, but also has a significant impact on the economic development of the countries. For instance, the World Bank estimates that a global influenza pandemic would cost the world economy $800 billion and kill tens-of-millions of people. (Brahmbhatt, Milan. Sept. 23, 2005)

With pandemic scenario, currently, the world is in conflict of new outbreak of covid 19.As the virus spread globally, the governments had taken actions to limit the spread through social isolation policies in turn result significant implication on socio-economic development of nations.

The global pandemic scenario assumes that the pandemic hurts the macro-economy of countries. Likewise, Ethiopia is confirmed the first case covid-19 on 13 March, 2020 and starting from the time the first case was confirmed in the country, the government at all levels have significantly strengthened its prevention and control measures. The preventive measures have immediate and significant effect on the economy. This paper was attempted to assess the economic implication of covid-19 on the Ethiopian economy.

1.2. Statement of the Problem

Covid-19 is spreading fast throughout the world. Authorities have acted to limit its spread through varies preventive and controlling policies. These actions are assumed to be resulted economic lose due to the preventive behavior of individuals and the transmission control policies of governments.

The consequence of covid 19 is multi-sectoral. The outbreak had immediate and significant effect on business sectors. Especially, the effects of covid-19 in the tourism, hospitality and recreation sectors have been unprecedented.Transportation service and related business are were another economic area affected by the outbreak of covid-19.To limit the spread of virus the government takes action on mobility of people that directly decrease the demand of service.On the other hand, the preventive measures taken on the mobility of people to limit the spread implies factory closure and social distancing drive workers to stay at home are assumednegatively affects the employment of input resources which in turn born underutilization of capacity. With the uncertainty consideration that is associated with the pandemic and the negative profit outlook on possible investment projects the resulted from lack of demand, firms are likely to hold off on long-term investment decisions(Policy Research Working Paper 9211).

Considering the effect of covid-19 on economy multi-dimensionally as stated above, the motivation of this study is to make assessment on the economic cost of covid-19in Ethiopia specifically in the study area. The study will be used to identify mostlyaffected business sectors for the purpose of intervention. It will provide important information on approaches of intervention to minimize economic effect of the outbreak and it help in designing appropriate policy instrument to rebuild the economy. It will also benefit as a reference for further study.

1.3. Objective of the Study

The general objective of the study is to assess the potential impact of covid-19 on microenterprisein West Arsi Zone of Ethiopia with the following specific objectives.

- To identify the factors affecting income that associates with covid-19
- To measure level of change in income of microenterprisesduring the outbreak of covid-19
- To estimate the effect of covid-19on income of microenterprises

2. Literature Review

2.1. Theoretical Literature

2.1.1.Definition of Pandemics

The word “Pandemic” originates from two Greek words, pan meaning “all” and demos “the people”. The word is commonly taken to refer to a widespread epidemic of contagious disease throughout the whole of a country or one or more continents at the same time (Honigsbaum, 2009). Nevertheless, in over the past 2 decades, the term has not been failed to be defined by many modern medical texts. Even authoritative texts about

concerning pandemics do not list it in their indexes, including such resources as comprehensive histories of medicine, classic epidemiology textbooks, the Institute of Medicine's influential 1992 report on emerging infections (Morens, Folkers, & Fauci, 2009).

The internationally accepted definition of a pandemic as it appears in the Dictionary of Epidemiology is straightforward and well-known: "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people" (Harris, 2000). The classical definition, however, includes nothing about population immunity, virology or disease severity. By On the basis of this dictionary definition, pandemics can be said to occur annually in each of the temperate southern and northern hemispheres, given that the definition of the term is so wide. Seasonal epidemics cross international boundaries and affect a large number of people. This said, seasonal epidemics are not considered pandemics. Modern definitions include "extensive epidemic", "epidemic […] over a very wide area and usually affecting a large proportion of the population", and "distributed or occurring widely throughout a region, country, continent or globally", among others (Morens et al., 2009).

2.1.2. Features of a Pandemic

Although the term "pandemic" has not been defined by many medical texts, there are some key features of a pandemic, which help us to understand the concept better, if we examine similarities and differences among them:

Wide geographic extension - The term pandemic usually refers to diseases that extend over large geographic areas—for example, the 14th-century plague (the Black Death), cholera, influenza, and human immunodeficiency virus HIV/AIDS. In a recent review of the history of pandemic influenza, pandemics were categorized as trans-regional and global (Taubenberger &Morens, 2009). There were 178 countries involved during the H1N1 outbreak in 2009 (Rewar et al., 2015).

Disease movement - In addition to geographic extension, most uses of the term pandemic imply unexpected disease movement or spread via transmission that can be traced from place to place (eg. the Black Death). Examples of disease movement include widespread person-to-person spread of diseases caused by respiratory viruses, such as influenza and SARS, or enteric organisms, such as Vibrio cholera, or by vectors, such as dengue. In the case of pandemic influenza A (H1N1), there was widespread transmission in both hemispheres between April and September 2009, that is early in the influenza season in the temperate southern hemisphere but out of season in the northern hemisphere (Barrelet, Bourrier, Burton-Jeangros, & Schindler, 2013). This out-of-season transmission is what characterizes an influenza pandemic.

Novelty - The term pandemic has been used most commonly to describe diseases that are new, or at least associated with novel variants of existing organisms—for example, antigenic shifts occurring in influenza viruses, the emergence of HIV/AIDS when it was recognized in the early 1980s, and historical epidemics o f diseases, such as plague. Novelty is a relative concept, however. "There have been 7 cholerapandemics during the past 200 years, presumably all caused by variants of the same organism" (Morens et al., 2009). In the 21th century, SARS and avian influenza are two newly emerged infections with pandemic potential that have arisen from Asia.

Severity - The term pandemic has been applied to severe or fatal diseases (eg, the Black Death, HIV/AIDS and SARS) much more commonly than it has been applied to mild diseases. "Global pandemics with high mortality

and morbidity occur when a virulent new viral strain emerges, against which the human population has no immunity" (Rewar et al., 2015). Severity is estimated by the case fatality ratio (Donaldson et al., 2009). "In contrast with Ebola, most cases die within 10 days of their initial infection, with the disease having a mortality rate of 50–90%" (WHO 2003). The outbreak of H7N9 has caused more than 600 human infections, with nearly 30% mortality (Su& He, 2015).

High attack rates and explosiveness - Pandemics are characterized by high rates of attack and by explosive spread. Examples are influenza H1N1 or Ebola. However, if the transmission is non -explosive, even if it is widespread, this is not classified as a pandemic. For example, West Nile virus spread to the Middle East and Russia, and the Western Hemisphere in 1999, but the transmission was slow and the attack rate was low, so it is not classified as a pandemic. Diseases with low rates of transmission or low rates of symptomatic disease are rarely classified as pandemics, even when they spread widely. However, diseases of low or moderate severity, such as Acute Hemorrhagic Conjunctivitis (AHC) in 1981, and cyclic global recurrences of scabies also have been called pandemic when they exhibit explosive (AHC) or widespread and recurrent geographic spread (Donaldson et al., 2009).

Minimal population immunity – Although pandemics often have been described in partly immune populations, it is clear that in limiting microbial infection and transmission, population immunity can be a powerful anti-pandemic force (Taubenberger &Morens, 2009). Pandemics are characterized by almost population immunity (Fangriya, 2015; WHO, 2013). So it is easy for a large part of population to be infected. For example, since H7N9 was a new variant of the influenza virus, the population had no immunity, so there were many cases worldwide in a short time (Wildoner, 2016).

The new pandemic Covid-19 (Novel Corona virus) and its developing impacts

I. Corona virus and Covid-19

The coronavirus was first isolated in 1937, which caused bronchitis in birds (Beaudette, 1937). However, human coronaviruses (HCoV-229E and HCoV-OC43) were first characterized in the 1960s, which were associated with diseases in respiratory tracts such as bronchitis and pneumonia and illnesses in the enteric and central nervous system (Gaunt et.al, 2010). The virus is named as coronavirus for the crown-like spikes on their surface (Lin et.al, 2005) Recently, a novel Coronavirus appeared in Wuhan, China, at the end of 2019. While several facts of the development of this virus remain unidentified, an increasing number of cases seem to have caused from human -to-human transmission (Munster et.al,2020). According to WHO, Coronavirus disease (covid-19) is an infectious disease caused by a newly discovered coronavirus (WHO, 2020).

II. Global Economy in the Outbreak/pandemics

Infectious diseases outbreak may have a big effect on society as they can harmfully affect illness, and death. The undesirable effects of this deadly illness on the global economy are advancing day by day. The virus is predictable to play a conclusive role in shifting the global GDP as the outbreak continues and has caused limitations on supply chain, traveling, a decline in foreign travel as well as stoppage and decline in economic activity, especially in China (Ahani, &Nilashi, 2020). These days, there are several news through social media platforms and internet about how the Coronavirus outbreak is disturbing supply chains, manufacturing, and services around the globe. There is an increasing interest from scholars and industries from January 2020 onwards, which is also visualized in the Google trends for Coronavirus outbreak and related keywords. A

sizable outbreak can overwhelm the health system, limiting the capacity to deal with routine health issues and compounding the problems. Beyond shocks to the health sector, epidemics force both the ill and their caretakers to miss work or be less effective at their jobs, driving down and disrupting productivity (Bloom et.al, 2018).

2.2. Empirical literatures

Several scholars analyse the relationship between health shocks and economic growth, see e.g. Bhargava et al. (2001), but there are very few empirical studies estimating the economic effects of pandemics. In particular there are few studies concerned with short- and medium-term aggregate effects. Besides, existing empirical studies focusing specifically on the Spanish flu face two serious problems. First, there is a lack of reliable data from the time period. Second, identification is difficult due, inter alia, to the fact that the flu occurred during and shortly after the World War I. the following presents the empirical works related to main pandemics occurred throughout history of mankind.

Empirical works related to impacts of Covid-19

Since the outbreak of the coronavirus disease of 2019 (covid-19), more than 1.4 million people have lost their lives due to the pandemic, and the global economy is expected to contract by a staggering 4.3 per cent in 2020. Millions of jobs have already been lost, millions of livelihoods are at risk, and an estimated additional 130 million people will be living in extreme poverty if the crisis persists. These are grim gures that re-act the immense challenges and human suffering caused by this pandemic. Nor is an end to covid-19 yet in sight. In many countries, the number of new covid-19 cases is rising at an alarming rate and, for many, a second wave is already an unwelcome reality. Much uncertainty remains about how and when the pandemic will run its course, but the unprecedented economic shock generated by the global health emergency has already sharply exposed the global economy's pre-existing weaknesses, severely setting back development progress around the world.

The U.S. economy, where gross domestic product (GDP) fell by 4.8% in the first quarter, is projected to fall into recession in 2020, with a contraction of 5.0% in a likely scenario (McKibbin and Fernando2020; Fernandes2020). The European Commission estimates that the euro area economy would decline by 7.25% in 2020, with all countries expected to fall into a recession (European Commission 2020). Developing countries in South-East Asia are also vulnerable to the global economic disruption of the pandemic due to decrease in trade, foreign investment and tourism. According to the International Monetary Fund (IMF), the ASEAN-5, which consists of Indonesia, Malaysia, Philippines, Thailand, and Vietnam is predicted to decline by 0.6% in 2020 (International Monetary Fund 2020). Reduction in remittances from high-income countries to low- and middle-income countries is likely to have a significant impact in many countries, such as Nepal or the Philippines, where remittances represent a large share of many households' income.

In the six-week span of March 15 to April 25, a record 30.2 Americans have filed for unemployment benefits as first-time claimants, according to the U.S. Department of Labor. The unemployment rate in the U.S. hit a staggering 14.7% officially in April from statistics released by the U.S. Bureau of Labor Statistics and some predictions estimate even higher unemployment rates, above 20%, (Bick and Blandin2020).

According to the Pew Research Center, the highest risks of layoffs are in the accommodations, retail trade, transportation services and arts entertainment and recreation services sector (Kochhar and Barroso2020).

Additionally, among the sectors that lost the most jobs in March are the leisure and hospitality and health and educational services (Burns 2020).

Using a variable vector autoregression model based on data from recent disasters, (Ludvig-son et al.2020) estimates a cumulative loss of 24 million jobs in the U.S. over the course of 10 months, largely due to a 17% loss in service sector employment. Only 37% of jobs in the U.S. can be performed at home, and many lower-income countries have a lower share of jobs that can be performed remotely (Dingell and Neiman2020). Consumer discretionary spending is in free fall as non-essential businesses are closed and individuals are saving more. Analyzing data from a personal finance website, (Baker et al.2020) found that consumer spending in the United States is highly dependent on the severity of the disease's outbreak in the state and the strength of the local government's response.

3. Methodology of the Study

This study was made depending on primary data. To achieve the stated objective the primary data on different sectors and the target group from the community regarding the effect of COVID-19 on their economywas collected in West Arsi Zone. In addition, to support the primary data the secondary documents were reviewed.

Sample size determination is based on the formula of Kothari (2004) and 350 enterprises were observed in this study.To take this sample, double stage sampling technique was employed.At the firstpurposely six woredas were selected.The woredas are intended to be selected conveniently to cover different targeted sectors. This was done in consultation with respective government officials. In the second stage, the target group was sampled proportionally fromeach woredas.

Both descriptive and econometric analysis was used to describe and evaluate the data collected. First, the variables were described using simple statistical measurements like mean and standard deviations and some statistical comparisons were made. Furthermore, econometric analysis was made and empirical estimation of the variables was presented neatly. In this section by using the econometric estimations, the potential economic impact of covid-19was estimated.

The analytical model used for this research is the Ordered Logit Model (OL model hereafter). The ordered logit model is a regression model for anordinal response variable. The model is based on the cumulative probabilities of the response variable: in particular, the logit of each cumulative probability is assumed to be a linear function of the covariates with regression coefficients constant across response categories.

In this research, respondents are asked toselect the rank of effect imposed by covid-19 based on their income change after the outbreak of the pandemic. The research assumed that based on their income, respondents can state the level of effect to income change in line with comparing their income after the outbreak with before. Hence, the respondents was presented with fourlist of possible level of effect,definition and expected sign of explanatory variablesto income change and interviewed systematically to capture the effect level of covid-19 on their income.

An ordinal response Yi with j categories can be represented asan underlying continuous response Yi* with a set of j−1 thresholds u_j such that Yi = y_j if and only if $u_{j-1} < Yi^* \leq u_j$. It follows that a cumulative model for an ordinal response, such as the ordered logit model, is equivalent to a system composed of a set of thresholds $u_j$and a linear regression model for an underlying continuous response:

$$y_i^* = \beta x_i^{'} + e_i$$

$$y_i = j \; if \; u_{j-1} < y_i^* \leq u_j \quad \text{where i = 1,...,N}$$

The probability that observation i will select alternative j is:

$$p_{ij} = p(y_i = j) = p(u_{j-1} < y_i^* \leq u_j)$$

$$= F\left(u_j - \beta x_i^{'}\right) - F\left(u_{j-1} - \beta x_i^{'}\right)$$

For the Ordered logit, F is the logistic cdf

$$F(z) = {e^z}/{(1 + e^z)}$$

Let's assume y_i =(1, 2, 3,4 and 5) for (strongly affected, affected, Moderately affected, less affected, not affected), the choice rule is:

$$y_i = 1, if \;\; y_i^* \leq u_1$$

$$y_i = 2, if \;\; u_1 < y_i^* \leq u_2$$

$$y_i = 3, if \;\; u_2 < y_i^* \leq u_3$$

$$y_i = 4, if \;\; u_3 < y_i^* \leq u_4$$

$$y_i = 5, if \;\; y_i^* > u_4$$

Using the generic representation, the respective probabilities for the five categories are derived as:

- $\Pr(y_i = 1) = F\left(u_1 - \beta x_i^{'}\right)$
- $\Pr(y_i = 2) = F\left(u_2 - \beta x_i^{'}\right) - F\left(u_1 - \beta x_i^{'}\right)$
- $\Pr(y_i = 3) = F\left(u_3 - \beta x_i^{'}\right) - F\left(u_2 - \beta x_i^{'}\right)$
- $\Pr(y_i = 4) = F\left(u_4 - \beta x_i^{'}\right) - F\left(u_3 - \beta x_i^{'}\right)$
- $\Pr(y_i = 5) = 1 - F\left(u_4 - \beta x_i^{'}\right)$

Definition of variables expected to explain COVID 19

Level of Effect of Covid-19 on Income (**LEFFECOV-19**):- It is considered as dependent variable in this research that used to rank the effect of the corona virus on income of microenterprises. The level is classified in quartile based on the percentage of changes in income as Strongly affected (from 75-100%), Affected (from 50-75%), Moderately Affected (from 25-50%) and Less Affected (from 0-25%).

Cut-off of Some Business (**CUTSOBUS**):- this refers to decline in income resulted fromthe cut-off of some business type/production due to the outbreak of covid-19. In case of the enterprises have more than two business types and produce different types of output/services, the cut-off of some business type/production expected to affect the income of enterprises.

Shortage in Supply of Input (**SHOSUINPUT**):- Different measurements taken to limit the transmission of COVID-19 are adversely affects the suppliers of various inputs. The decline in input, on the other hand, implies a decrease in production and income of the producer.

Decrease in Customers (**DECINCUS**):- It refers to a decline in income due to decrease in customer. While the outbreak, customers are declined due to the fear of covid-19 and restriction imposed by the government (such as social distance/avoid close contact, avoid going to crowded places, stay home and self-isolate, etc) to limit the spread of the virus that affects the number of customers which in turn expected to decline the income enterprises.

Decrease in Product (**DECINPRO**):- When the producers anticipated the decline in their product demand, they decide to cut their product level. This cut in production level due to the fear of lack in customer while the outbreak of virus is expected to reduce the income of enterprises.

Increase in Input Price (**INCPRINPUT**):- this represents the increase in price of inputs that resulted from different measurements taken to limit the spread of covid-19. Increase in price of input induces the cost of product that adversely affects the income of microenterprises.

Poor Performance of Workers (**POPERWORKERS**):- Due to various reasons workers are expected to perform less which in turn reduce production and income.

Displacement of Workers (**DISWORKERS**):- Workers may displace from their job due to different factors that associated with the outbreak. When factor of production (labor in our case) is declined or displaced from the job, production level is fall that implies income of the producer is decline.

Marketing Challenges (**MARCHAL**):- This refers to the challenges associated with the distribution and marketing of the product. Measures taken to control the transmission of the virus especially rules and regulations regarding transportations terribly affect the marketing circumstances which in turn reduces the sales and then income.

4. Results and Discussions

The study was intended to identify the factors contributing to decline in income of the microenterprises during covid-19 by using both descriptive statistics and econometric analysis and to analysis the effect of the outbreak on their income.

4.1. Descriptive Analysis

This section presents the analysis of factors affects the income of microenterprises that expected to associate with covid-19 and the most vulnerable business area from the business types that expected to associate with the outbreak using descriptive analysis. Furthermore, the standard t- test is used to compare statistical significance of the mean difference of the change in income of micro enterprises that of before and during covid-19.

Table 1: Comparison of Level of effect of covid-19on income of Microenterprises

Variables	Level of effect									
	Strongly affected		Affected		Moderately		Less Affected		Not affected	
	0	1	0	1	0	1	0	1	0	1
Cut off of some business type/production	4	5	20	57	95	112	40	15	2	0
Shortage in input supplier	5	4	34	43	104	103	35	20	2	0
Decrease in customer	1	8	22	55	76	131	24	31	2	0
Poor performance of workers	6	3	62	15	186	21	53	2	2	0
Decrease in product due to fear of COVID	1	8	23	54	122	85	35	20	2	0
Displacement of worker from their job	4	5	22	55	91	116	40	15	2	0
Product distribution and marketing challenges	4	5	24	53	87	120	33	22	2	0

Source: Own survey data

The above table shows that the effect of expected variable on income of microenterprises in each level of effect. It reveals that most microenterprises are affected at affected level as compared to no and less affected level for more variables. For instance, of total of 77microenterprises those are affected, decrease in product due to fear of covid-19contribute in decline of their income for 54 respondents (70.13%) while it contribute only for 20microenterprises (36.36% of microenterprises) for those less affected.

As shown in the following table, the mean of income of microenterprises before covid-19 outbreak is 181,382.9 whereas that of after the outbreak is 109,865.7. It shows that about 35.82% (71,517.14) income is declined after covid-19outbreak.

Table 2: Comparison of mean of Microenterprises income

	Mean
Income before covid-19	181,382.9
Income after covid-19	109,865.7
Income change	71,517.14
Percentage of change in income	35.82091

Source: Own survey data

4.2. Econometric Analysis

This part presents the ordered log it econometric model estimates of the effect of covid-19 on the income of microenterprises. The factors that conceptually hypothesized and associated with the pandemic to affect the income of the microenterprises are Cut-off of some business type/production, Shortage in input supplier, Decrease in customer, Decrease in product due to fear of covid-19, Increase in price of inputs, Displacement of worker from their job and Product distribution and marketing challenges. In this study, these variables were analyzed using econometric model with their degree of significance in affecting the income of micro enterprises. For estimation purpose *STATA 14* software package was employed.

Estimating the Effect of COVID 19 on Income of Microenterprises

The estimation of the effect of covid-19 on microenterprises was made using OL model. The following table gives model information and the coefficients of ordered log it estimation of the model. It shows that of the expected variables included in the model cut-off of some business, decrease in customer, decrease in product, displacement of workers from their work and marketing challenges are statistically significant in positive relationship at 1%, 5% and 10% level of significance while shortage in supply of input is statistically insignificant.

Table 4: Ordered Logit Regression Result of Microenterprises data

Ordered logistic regression — Number of obs = 350; LR chi2(7) = 73.05; Prob > chi2 = 0.0000; Log likelihood = -333.83899; Pseudo R2 = 0.0986

leffecov19	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
cutsobus	.7942209	.2373009	3.35	0.001	.3291197	1.259322
shosuinput	.3000106	.2192156	1.37	0.171	-.1296442	.7296654
decincus	.4689862	.2286825	2.05	0.040	.0207768	.9171957
decinpro	.8993231	.2286395	3.93	0.000	.451198	1.347448
incprinput	.0010934	.000659	1.66	0.097	-.0001983	.0023851
disworkers	.6972765	.2349747	2.97	0.003	.2367345	1.157819
marchal	.5202577	.2269031	2.29	0.022	.0755358	.9649796
/cut1	-3.548215	.7367284			-4.992176	-2.104254
/cut2	.1454956	.2714198			-.3864775	.6774687
/cut3	3.441298	.3481318			2.758972	4.123624
/cut4	6.119223	.4866828			5.165342	7.073103

Source: Own survey data result

The marginal effect for statistically significant variables in the model is conducted to measure the effect of these variables on income. Table 5 shows the marginal effect of significant variables with their respective level of significance in two categorical ranks such as strongly affected and affected rank. It is tried to estimate the influence of these variables to the decline in income of microenterprises. The following table is present the marginal effect.

Table 5: Average Marginal Effect

LEFFECOV-19	Strongly Affected		Affected	
	dy/dx	P>|z|	dy/dx	P>|z|
CUTSOBUS	.0197292	0.021	.1064507	0.001
DECINCUS	.0116501	0.086	.062859	0.039
DECINPRO	.02234	0.014	.1205377	0.000
INCPRINPUT	.0000272	0.138	.0001465	0.095
DISWORKERS	.017321	0.031	.0934571	0.003
MARCHAL	.0129237	0.063	.0697309	0.021

Source: Own survey data result

The above table reveals that cut-off of some business types of enterprises due to the outbreak of covid-19is influence about 1.97% and 10.65% at 5% and 1% significant level to the decline in income of microenterprises for strongly affected and affected level of effect respectively. This means that with the

outbreak of corona virus, due to the cut-off of some business types of enterprises resulted from the outbreak, the decline in income of microenterprises is laid down under the effect category of strongly affected and affected level by 1.97% and 10.65% respectively.

Similarly, the table shows the effect of decrease in customers of microenterprises due to corona virus. Their income is strongly affected due to corona virus via decrease in customerby1.17% whereas it is affected by about 6.29% at 10% and 5% at significant level, respectively. In other word, decrease in customers strongly affected income of enterprises by 1.17% while it affected income by 6.29%.

Another significant variable that included in the model is decrease in product due to the anticipation of low demand resulted from the pandemic. Table 5 shows that decrease in product is causal to level of strongly affected income by about 2.23% at 5% significant level and is causal to level of affected income occurred due to covid-19 outbreak by about 12.05% at 1% significant level.

The table 5 also shows the effect of change in price of factors of production. It reveals that increase in price is statistically insignificant independently even though it significantly affect income of enterprises jointly with other variables as it stated in table 4.

Displacement of workers from their job is other variable by which covid-19 affect the income enterprises. To control/minimize the spread of outbreak that creates the ways in which workers are being out off job. This in turn affects the production and income of microenterprises. The above table reveals that displacement of worker strongly affected the income by 1.73% at 5% level of significance and it affected enterprises income by 9.35% at 1% significance level which is statistically significant.

Another effect of corona virus on income of enterprises was shown through its effects on distribution channels. Table 5 reveals that income of enterprises is strongly affected by 1.29% while it affected by 6.97% at 5% significance level due to challenges related to product distribution and marketing channels. In other term, product distribution and marketing problems are strongly affected income by 1.29% whereas it contributed for the affected level of income by about 6.97%.

5. Conclusions and Recommendation

5.1. Conclusions

This study was conducted in West Arsi Zone, which is located in Oromia Regional State of Ethiopia. The main objective of the study was to estimate the potential impact of covid-19 on the income of microenterprises. The study was conducted specifically to describe the factors causative to the decline in income of microenterprises during the outbreak of covid-19 and to estimate the effect of COVID-19 outbreak on microenterprises' income.

The expected variables that mostly affected microenterprises are cut-off of some business type/production, shortage in input supplier, decreases in customer, decreases in product due to fear of covid-19, increase in price of inputs, displacement of worker from their job and product distribution and marketing challenges.

In this study, ordered logit model is employed to evaluate the effect of covid-19 outbreak on income of microenterprises. Most variables which are assumed to relate with the pandemic are statistically significantly causes the decline in income of micro enterprises during the outbreak of covid-19. Variables such as cut-off of some business type/production, decrease in customer, decrease in product due to fear of covid-19, displacement of worker from their job and product distribution and marketing challenges are statistically

significant at 1%, 5% and 10% level of significance in affecting the income of enterprises while shortage in input supplier is insignificant.

5.2. Recommendation

The study implies that covid-19 affecting income of microenterprises through its effect on different variables. Form the result, for instant, though its effect on the assumed variables, COVID-19 significantly affects the income of microenterprise. Identifiably, cut-off of some business type/production, decreases in customer, decreases in product due to fear of covid-19,displacement of worker from their job and marketing challenges are play a vital role in decline of income of enterprises. Thus, the following recommendations are drawn.

- The study reveals that the problems in product marketing and distribution channels pays vital role in changes in income. This may when there is preventive actions are taken, especially on transportation, to control the widespread of coronavirus. Thus, it must be done on distribution channel.
- The number of customer is a pillar to any producers to make a decision about their production level. A producer anticipated a better customer of their product is produces more output whereas with expected small number of customer the product produced is also decline. In other word, decline level of product means income is decreases. The finding of this study reveals that a decrease in number of customer is significantly related with a decline in income of microenterprises. And also the effect of a decline in production of enterprises on their income is significant. This pays that enterprises should improve their method of production to reduce the fear of their customers and exposure to virus while using the product.

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References

1. *Genicot, L. (1966). "Crisis: From the Middle Ages to Modern Times." Chapter in Volume I "The Agrarian Life of the Middle Ages". M. M. Postan editor.* ***The Cambridge Economic History of Europe.*** *London: Cambridge University Press. Pp. 660-742.*
2. *Noymer, A. and M. Garenne. (2000). "The 1918 Influenza Epidemic's Effects on Sex Differentials in Mortality in the United States".* ***Population and Development Review****, September: 26:565.*
3. *Lewis, M. (2001). "The Economics of Epidemics."* ***Georgetown Journal of International Affairs****. Summer/Fall: 25-31.*
4. *Cohn, S. K. (2003).* ***The Black Death Transformed: Disease and Culture in Early Renaissance Europe****. New York: Oxford University Press.*

5. *Brainerd, E., and M. Siegler. (2003). "The Economic Effects of the 1918 Influenza Epidemic". Williams College. (November) Mimeo.*
6. *Bell, C., S. Devarajan, and H. Gersbach. (2004). "Thinking about the Long-run Economic Costs of AIDS." In M. Haacker, ed.* ***The Macroeconomics of HIV/AIDS****. Washington, D.C.: IMF.*
7. *Taubenberger, J. K., &Morens, D. M. (2009). Pandemic influenza - including a risk assessment of H5N1. Revue Scientifique Et Technique-Office International Des Epizooties, 28(1), 187-202.*
8. *Barrelet, C., Bourrier, M., Burton-Jeangros, C., & Schindler, M. (2013). Unresolved issues in risk communication research: the case of the H1N1 pandemic (2009-2011). Influenza Other Respir Viruses, 7 Suppl 2, 114-119.*
9. *Fangriya, R. (2015). Pandemic Influenza Threat. World Scientific News, 11, 120-137.*
10. *Rewar, S., Mirdha, D., &Rewar, P. (2015). Treatment and Prevention of Pandemic H1N1 Influenza. Annals of GlobalHealth, 81(5), 645-653.*
11. *Wildoner, D. A. (2016). What's New with Pandemic Flu. Clinical Microbiology Newsletter, 38(4), 27-31.*
12. *Bloom, D. E., Cadarette, D., & Sevilla, J. (2018). Epidemics & Economi. Finance &Development.*
13. *Fan, V. Y., Jamison, D. T., & Summers, L. H. (2018). Pandemic risk: how large are the expected losses? Bulletin of the World Health Organization, 96(2), 129.*
14. *McKibbin W. J., Fernando R. (2020) The Global Macroeconomic Impacts of Covid-19: Seven Scenarios. SSRN Electronic Journal.*
15. *Fernandes N. (2020) Economic effects of coronavirus outbreak (Covid-19) on the world economy. SSRN Electronic Journal, ISSN 1556-5068, pages 0–29*
16. *European Commission (2020) European Economic Forecast: Spring 2020. Technical report, European Commission, Brussels, Belgium.*
17. *International Monetary Fund (2020) World Economic Outlook, April 2020: The Great Lockdown. Technical Report April, Washington DC.*
18. *Bick A., Blandin A. (2020) Real time labor market estimates during the coronavirus outbreak, W. P. Carey School of Business, April, 2020*
19. *Kochhar R., Barroso A. (2020) Young workers likely to be hard hit as Covid-19 strikes a blow to restaurants and other service sector jobs. Pew Research Center, March 27.*
20. *Burns D. (2020) How the coronavirus job cuts played out by sector and demographics. Reuters, April 4,4 2020.*
21. *Ludvigson S. C., Ma S., Ng S. (2020). Covid19 and the macroeconomic effects of costly disasters. NBER Working Paper Series, 4. ISSN 1098-6596*