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A Review on the Socio-Economic Impact of HIV-AIDS in Ethiopia

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Abstract
This paper reviewed socio-economic impacts of HIV/AIDS at household, agriculture, firms' level, labor force and other economic sectors in Ethiopia. The direct costs of AIDS include expenditures for medical care, drugs, and funeral expenses and indirect costs include lost time due to illness, recruitment and training costs to replace workers, and care of orphans. The labor force allied impact of HIV is also more important as the loss of young adults in their most productive years will affect overall economic output of the country which in turn decline the proportional per-capita income growth and lead to fall in private consumption, investment, exports and government tax revenue. The macroeconomic impact of AIDS was found to be adverse on savings and thus capital formation and reducing capital-labor ratio. Furthermore, AIDS-related illnesses and deaths to employees also affect a firm by both increasing expenditures for health care costs, burial fees, training and recruitment of replaced employees and by reducing revenues because of absenteeism due to illness or attendance at funerals and time spent on training. AIDS affect the health sector as it increase number of peoples seeking services and as health care for AIDS patients is more expensive than for most other conditions. Besides, people who conduct mining, who work in water sector, and who operate transport services spend many days and nights away from their families leading to increased opportunities for commercial sex and suffering from HIV/AIDS. AIDS affects the education sector too. In general, HIV/AIDS has adverse impact in the economy; it is, therefore, justifiable to target HIV-impact mitigation programs and effective prevention and management strategies through which its impact is alleviated.
Keywords: HIV/AIDS, Economic impact, mortality, labour force, Agriculture, Macroeconomic

1. Introduction

HIV/AIDS is different from most other diseases as it strikes people in the most productive age groups and is essentially hundred percent fatal (incurable). Nowadays, the impact of HIV/ADIS has come to the forefront to be one of the factors for the slow growth performance of developing world. Specifically, it is becoming the threat especially for the low-income developing countries in their economic development. The HIV/AIDS epidemic in Ethiopia presents an obstacle to the development across nearly all sectors of society. It is documented that HIV poses a threat to all types of assets including human, financial, physical, social, natural and capital.

This virulent disease is incapacitating the most economically productive age group (20-49), severely limiting gains from agricultural programs and jeopardizing food security. Economically, Ethiopia is a low-income country with a per capita GNI of $110 in 2005 (WDR 2006). It is clearly more than a health issue as the economic consequences of the epidemic can seriously undermine the development achievements of the existing policies and programs. HIV/AIDS is a growing threat to efforts made for economic growth and poverty reduction. The evilness of HIV/AIDS to the Ethiopian economic growth and being the contemporary issue initiated to conduct this review. This paper is, therefore, intended to review the impacts of HIV/AIDS along different sectors of the economy of the country.

2. Methodology

This review was conducted by looking in to researches outputs dealt with impacts of HIV/AIDS at household, agriculture, firms, labor force and other economic sectors. The cost of HIV/AIDS in output loss and medication cost were also reviewed.

3. Review and Discussion

3.1. Impact of HIV/AIDS on Households According to Lori Bollinger et al. (1999), impacts on household begin as a member of the household starts to suffer from HIV-related illnesses like; loss of income of the patient (who is frequently the main breadwinner) and substantial household expenditures for medical expenses. Other members of the household, usually daughters and wives may miss school or work in order to care for the sick person. Besides, it results in a permanent loss of income from less labor on the farm or from lower remittances, funeral and mourning (bereavement) costs, and the removal of children from school in order to save educational expenses and increase household labor, resulting in a severe loss of future earning potential.

A study by Demeke (1993) in Ethiopia on 25 AIDS afflicted rural families found that the average cost of treatment, funeral and mourning expenses amounted to several times the average household income leading to selling of productive assets, especially livestock.

Table 1: Average household expenditure for AIDS death (birr)

Cost item	Observation	Mean	St.dev.	Min	Max
Treatment	24	1132	1930	0	9100
Funeral	17	574	327	100	1000
Teskar	13	786	674	0	2000

Source: Survey result (Demeke 1993)

Table 2: Families' report towards extended support to others

Response	Frequency	%
No support	105	86.07
Labor support	7	5.74
Material support	9	7.38
Both	1	0.82
Total	122	100

Source: Survey result (Demeke 1993)

3.2. Impact on women and children Women who are widowed as a result of AIDS often have to resort to commercial sex work in order to support their families, further increasing their risk of HIV infection. A survey of 100 households throughout Ethiopia in 1994 by Baryoh, A. assessing the impact of HIV/AIDS on women and children revealed that the work load of women who either had HIV/AIDS or lived in a household that was affected by HIV/AIDS, or both, were significantly different than workload of women who lived in households that were not either afflicted or affected. Accordingly, the mean hours spent in agricultural tasks varied between 11.6 and 16.4 hours for households with HIV/AIDS, while women in non-AIDS households would able to spend 33.6 hours in fields every week. Again, women in non-AIDS households spent 25.7 hours per week caring for their children, while women in AIDS households spent between 1.9 and 13.1 hours per week. This workload difference was due to the amount of time the women spent on nursing the afflicted at home and outside the home (Baryoh 1994).

Table 3: Mean hours spent per week by women belonging to various types of households

Activity	Households types				
	Afflicted	Affected	Afflicted and Affected	Not afflicted/ Affected	Mean hours for all
Agriculture	16.4	15.0	11.6	33.6	18.5
Nursing afflicted at home	62.3	69.0	54.9	-	50.2
Nursing afflicted outside	48.6	29.0	33.7	-	30.0
Child care	1.9	13.1	6.9	25.7	11.0
Total	129.2	126.1	107.1	59.3	

Source: Survey result (Baryoh 1994)

Similarly, households experiencing an HIV/AIDS death in Ethiopia are poorer than those experiencing a non-HIV/AIDS death. In addition, poorer households experience a greater decline in economic status following death of a household member (F. Tekola et al. 2008). It implied that AIDS mortality (deaths) resulted in more detrimental effects on the household economic status than mortality due to other causes. The indirect cost of an AIDS death per household exceeds that of non-AIDS death by 58%. However, both the rich and poor are likely to have higher infection rates. The rich like the powerful, are more mobile, less constrained by community norms, and can afford the lifestyles they choose, which often place them at risk of infection. The poor and the powerless alike are less able to make choices about their life circumstances, more often forced into work away from home and family, or commercial sex work. Their health and nutritional levels are low and they cannot afford to use health services (Reid 1992:5).

3.3. Impact of HIV-AIDS in reducing labor force

The study by Daniel (2002) revealed the decline in the labor force and the resultant consequences on the economy were diverse. The labor force impact of HIV is more important as far as the economy is based on agriculture (mainly depends on labor force among others). As shown in Appendix Table 1, the agricultural and non-agricultural output declined by around 2% and 1.8% on average during the forecast period as compared to the base run. As a result, private consumption, investment, exports and government tax revenue lowered by 1.9%, 2.4%, 3% and 8%, respectively. Again, decline in exports resulted in a direct repercussion on imports through lowering availability of foreign exchange.

Similarly, (Lori Bollinger et al. 1999) found that the major economic effects of HIV/AIDS are a reduction in the labor supply and increased costs which in turn would affect overall economic output. The direct costs of AIDS include expenditures for medical care, drugs, and funeral expenses. Indirect costs include lost time due to illness, recruitment and training costs to replace workers, and care of orphans. As Ethiopian economy is primarily agriculture based, the death of productive labor force affect the amount of production gained from it which makes the country less developed.

Table: 4a Computing Average Productivity

Year	Labor force (L)*	Output (Y)**	Y/L
1992	24.1	11799.5	489.4
1993	23.5	11999.5	511.7
1994	24.2	12646.0	523.6
1995	24.9	13987.1	562.3
1996	25.6	14713.6	574.2
1997	25.7	14512.8	574.2
1998	26.3	15413.5	585.1
1999	26.4	16218.1	615.0
Average productivity (1992 - 1999) =553.3 Birr			

*Source: a World Development Indicator, 2000 WB CD ROMS and **Source: a MEDaC

Table: 4b Potential Output Loss

Average Productivity	AIDS Death in 1999		Potential Output Loss in 1999		
	High Estimate	Low Estimate	High Estimate	Low Estimate	Average
553.3 Birr	280000	140000	154.9 million Birr 0.96 (% of GDP)	77.5 million Birr 0.48 (% of GDP)	116.2 million Birr 0.72 (% of GDP

*Source: UNAIDS Report, www.unaids.org/epidemic update/report

Table: 5 Estimation of medication Cost

Infected Adult Medication Cost (1999)				Medication cost related to HIV death (1999		
Average cost per adult	Infected Adult	Medication Cost		HIV Death	Medication Cost	
2185 Birr	2.9 million	Scenario 1*	Scenario 2*	0.28 million	Scenario 1*	Scenario 2
		3.17 billion	1.58 billion		305.9 million	153.0 million
		5.9 (% GDP)	2.9 (% GDP)		0.6 (% GDP)	0.3(% GDP)

Source: Survey result, (Pallangyo and Laing), 1999

* Scenario 1, assuming 50% of the HIV infected adult get medication.

*Scenario 2, assuming only 25% of the HIV infected adult get medication

Generally, from the above tables, it can be concluded that the cost of HIV/AIDS can be explained in terms of the two aspects i.e. reducing output that would have been produced and in increasing the medication cost that will be devoted to the patient and patient related issues.

Similarly, according Helmut Kloos and Damen Haile Miriam, the direct and indirect costs of health and social care in the Ethiopian public and private sectors as well as lost earnings due to HIV/AIDS for the period 1997–2000 were estimated to be $32–49 million, and the cost of preventive government services is $56 million. Patient load is stretching the capacity of many hospitals where more than 50% of the medical beds were occupied by AIDS patients in 1997 and hospitalized medical services to patients with other diseases had to be denied (UNAIDS 1997). The common perception that AIDS patients are preferably cared for in hospitals rather than at home (Berhane & Zakus 1995) ads to the health services crisis.

3.4. Impact of HIV-AIDS on Agriculture

A reduction in the agricultural labor force has significant effects on the size of harvests and so reduces household production and income, and inability to work or diversion of agricultural labor to care for sick household members reduces labor productivity (Lori Bollinger et al. 1999). Additionally, a loss of agricultural labor is likely to cause farmers to switch to less-labor-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops (Demeke 1993). The study found impact of an AIDS death varied by region: it would have the most severe effect on harvesting Teff in Nazareth, on digging holes for transplanting *Enset* plants in Atat, on ploughing millet fields in Baherdar, and on picking coffee in Yirgalem. Women are generally responsible for other tasks: leveling, weeding, harvesting minor crops, transporting produce, and household duties. The death of the wife to AIDS can make it difficult for other household members to carry out these tasks, in addition to caring for children. In some areas, due to the death, land would be leased out as the family cannot use all of it in a productive way (Demeke 1993).

Both yields and areas under cultivation decreased when a death occurred, or when a household was headed by a female. When a death occurs, only 5.6% of households reached over 9 quintals of Teff per hectare, while households not experiencing a death reached nearly 22% of production levels (Demeke 1993).

Generally the death of human labor due to HIV-AIDS results in reducing the amount of agricultural products, and leading family members to face food insufficiency due to leasing out of their land. It also declines the exports of crops and in turn decreasing income from foreign currency which finally result in slow growth of the economy of a country.

3.5. Impact of HIV/AIDS on Firms AIDS-related illnesses and deaths to employees affect a firm by both increasing expenditures and reducing revenues in that expenditures are increased for health care costs, burial fees and training and recruitment of replacement employees; and revenues may be decreased because of absenteeism due to illness or attendance at funerals and time spent on training (Lori Bollinger et al., 1999). They have concluded the estimated cost of AIDS-related medical treatment was fairly between birr 43, 179 (US$5, 5553) and birr 34, 7072 (US$44, 639). The number of AIDS-related illnesses was 53% of all reported illnesses, totaling 15,363 incidents over a five-year period. Additionally, according to Bersufekad (1994), out of 19 individuals they interviewed in detail, 11 lost 30 days over one year due to HIV/AIDS-related illnesses, seven lost on average 60 days, while one person said he was absent for 240 days because of HIV/AIDS. For some smaller firms the loss of one or more key employees could be catastrophic leading to the collapse of the firm. In others, the impact may be small. Firms in some key sectors, such as transportation and mining, are likely to suffer larger impacts than firms in other sectors. Production of businesses is also affected; one study of industrial firms found half of all illnesses reported by employees between 1988 and 1993 were due to AIDS (Ministry of Health 2000a). In poorly managed situations the HIV-related costs to companies can be high.

3.6. Macroeconomic Impact of HIV/AIDS

According to Daniel (2002), the prevalence of HIV/AIDS has a negative impact on the overall economy as the decline in the active labor force has a direct adverse impact on both the output of the agricultural and nonagricultural sectors that would lead to the fall in private consumption, investment, exports and government tax revenue. Again, the slowdown of the economy would also be strengthened (devastated) with the fall in imports due to the decline in exports and hence the shrinking down of the importing capacity. Generally, based on the study, macro-economic implication of HIV/AIDS can be seen at aggregate level, household level and fiscal (government Level). However, Lori Bollinger et al. (1999) found that estimates of the macroeconomic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best-educated employees more than others. This study has found that the impacts may be small, especially if there is a plentiful (abundant) supply of excess labor and worker benefits are small. AIDS deaths lead directly to a reduction in the number of workers available. These deaths occur to workers in their most productive years. As less experienced workers replace these experienced workers, worker productivity is reduced. A shortage of workers leads to higher wages, which leads to higher domestic production costs. Higher production costs lead to a loss of international competitiveness which can cause foreign exchange shortages. Lower government revenues and reduced private savings (because of greater health care expenditures and a loss of worker income) can cause a significant drop in savings and capital accumulation. This leads to slower employment creation in the formal sector, which is particularly capital intensive. Reduced worker productivity and investment leads to fewer jobs in the formal sector. As a result some workers will be pushed from high paying jobs in the formal sector to lower paying jobs in the informal sector. The overall impact of AIDS on the macro-economy is small at first but increases significantly over time.

Du Guerney has further developed this argument emphasising that macro-economic impacts of HIV/AIDS only appear when specific sectors are considered (2001a: 3) and it is particularly difficult to assess the macro-economic impact of HIV/AIDS since many other factors affect economic performance (du Guerney 2001a).

According to Kidane (1994), a macroeconomic simulation model of the Ethiopian economy found that, although there would be a significant demographic impact from HIV/AIDS in Ethiopia, there would be very little overall macroeconomic impact. Instead of growing at around 2.95% per year, which was the rate in the base year, the population growth rate will be about 1.6% by the year 2000, and may even be negative by the year 2010. The model does not, however, indicate an effect on overall GDP, per capita GDP, or government revenue. The only macroeconomic impact was found to be a negative effect on savings and thus capital formation, reducing the capital-labor ratio from about 2.14 in 1995 to 1.64 in 2010 in the low variant of the simulation model.

In a 1994 study, 49.12% of those with HIV/AIDS were between the ages of 20 and 39. Unlike many Sub-Saharan African countries where AIDS patients can have higher incomes, in Ethiopia, 93.54% of AIDS patients made less than birr 499 per month (US$64.18). Therefore, the effect of AIDS on the labor force will not be dramatic in the near future, as those dying will be able to be replaced by the unemployed. Only after the

prevalence rate increases will the more highly skilled workers be affected (Bersufekad 1994).

3.7. Impacts of HIV/AIDS on Health Sector

AIDS affects the health sector mainly by increasing the number of persons seeking health services, and through the costs of health care for AIDS patients. The rising demand for treatment of AIDS related diseases leads to a shortage of hospital beds. The loss of hospital capacity is estimated to be in the order of 50% in the most heavily affected countries (UN Population Division 2003). AIDS affect the health sector for two reasons: (1) it will increase the number of people seeking services and (2) health care for AIDS patients is more expensive than for most other conditions. Governments will face trade-offs along at least three dimensions: treating AIDS versus preventing HIV infection; treating AIDS versus treating other illnesses; and spending for health versus spending for other objectives. Maintaining a healthy population is an important goal in its own right and is crucial to the development of a productive work force which in turn is essential for economic development (Lori Bollinger et al. 1999).

AIDS related health care costs in Ethiopia for the period as the total preventive cost was US$70 million, and the total direct discounted cost during this was US$184 million. The total year cost of treatment per patient was estimated to be US$627.50, which is more than five times greater than the per capita income of US$120 (Kello 1994).

By 2005, it was predicted that hospital bed occupancy would increase to about 28% as a result of the AIDS epidemic; or else the health care system of Ethiopia will need US$3.4 million in order to increase their bed capacity. Furthermore, the costs of drug (medicine) treatment will vary between US$53 and US$270 per patient. The total cost for meeting the needs of all AIDS patients in 1994 would have been US$29 million. A further problem in health care in Ethiopia is that universal precautions are not always taken by medical personnel, which has led to a great deal of fear among staff. The concern is that the health care system may lose many of its employees as a result of this impact (Kello 1994).

3.8. Impacts of HIV/AIDS on Transport Sector

The transport sector is especially vulnerable to AIDS and important to AIDS prevention. Building and maintaining transport infrastructure often involves sending teams of men away from their families for extended periods of time, increase the likelihood of multiple sexual partners. The people who operate transport services (truck drivers, train crews, sailors) spend many days and nights away from their families. Most transport managers are highly trained professionals who are hard to replace if they die. Governments face the dilemma (problem) of improving transport as an essential element of national development while protecting the health of the workers and their families. Of the 233 AIDS cases in 1994 study, 109 (46.78%) were in the transportation sector. Of those 109 cases, 70 (64.22%) were transport equipment operators. In the same study, 80.73% of AIDS cases employed in the transportation and communication sector came from one coordination station of the Ethiopian Freight Transport Enterprise which required long distance travel and a significant amount of time away from home (Bersufekad 1994).

3.9. Impacts of HIV/AIDS on Mining Sector

Most mining is conducted at sites far from population centers forcing workers to live apart from their families for extended periods of time. They often resort to commercial sex; and many become infected with HIV and spread that infection to their spouses and communities when they return home. Highly trained mining engineers can be very difficult to replace. As a result, a severe AIDS epidemic can seriously threaten mine production which in turn affects the economy of the country at large (Bersufekad 1994).

3.10. Impacts of HIV/AIDS on Education Sector

AIDS affects the supply and demand sides of education. The supply of teachers is reduced by AIDS-related illness and death; and children may be kept out of school if they are needed at home to care for sick family members; or may drop out of school for economic reasons. Thus, declines in the number of teachers and in school enrollment are the most visible effects of the epidemic on education (Kello 1994).

To estimate the impact of AIDS on education, the change in pupil-to-teacher ratio and primary, secondary and tertiary school enrollment were compared with the change in HIV prevalence rate. Again, HIV/AIDS might be only one among several reasons for changes in school attendance and teacher absenteeism; but significant shifts over a long period of time are likely to be attributable, at least in part, to conditions arising from the impact of HIV/AIDS (Ibrahima Coulibaly 2005).

3.11. Impacts of HIV/AIDS on Water Sector

Developing water resources in arid areas and controlling excess water during rainy periods requires highly skilled water engineers and constant maintenance of wells, dams, embankments, etc. These engineers may be

especially susceptible to HIV because of the need to spend many nights away from their families (Bersufekad 1994). The loss of even a small number of highly trained engineers can put entire water systems and significant investment at risk.

4. Summary and Conclusion

From the above, HIV/AIDS has the potential to cause severe deterioration in the economic conditions of the country. The household impacts begin as soon as a member of the household starts to suffer from HIV-related illnesses; like loss of income of the patient (who is frequently the main breadwinner) and household expenditures for medical expenses may increase substantially. The decline in the labor force due to HIV/AIDS has a direct negative impact on both the output of the agricultural and non-agricultural sectors that would lead to the fall in private consumption, per capita income, investment, exports and government tax revenue and then importing capacity.

It is reviewed that direct costs of AIDS include expenditures for medical care, drugs, and funeral expenses; and the indirect costs include the lost time due to illness, recruitment and training costs to replace workers, and care of orphans. AIDS have also significant impacts in other key sectors like health, transport, mining, education and water sector. Summing up, HIV/AIDS has a negative impact at individual, family, community, and national levels of different sectors.

5. Prospects and the Way Forwards There is much that can be done now to keep the HIV/AIDS epidemic from getting worse and to mitigate the negative effects. Amongst the followings are necessary:

- **Prevent new infections:** The most effective response will be to support programs reducing the number of new infections in the future. Governments, NGOs and the commercial sectors must work together on information, education and communications; work place based programs, voluntary counseling and testing; condom promotion and availability; expanded and improved services to prevent and treat sexually transmitted diseases; and efforts to protect human rights and reduce stigma and discrimination.
- **Design major development projects appropriately:** Special prevention programs can be put in place from the very beginning in projects such as mines or new ports where commercial sex might be expected to flourish.
- **Programs addressing specific problems:** Reduced school fees for children of poor families and AIDS orphans stay in school longer and avoid deterioration in education level of the workforce. Tax benefits or other incentives for training can encourage firms to maintain worker productivity in spite of loss of experienced workers.
- **Mitigate the effects of AIDS on poverty:** The impacts of AIDS on households can be reduced to some extent by publicly funded programs like care for people with HIV/AIDS, support for basic needs of households coping with AIDS, foster care for AIDS orphans, food programs for children and support for educational expenses.
- **A strong political commitment to the fight against AIDS is crucial.** Countries that have shown the most success, such as Uganda, Thailand and Senegal all had strong support from the top political leaders. Perhaps the most important role for the government in the fight against AIDS is to ensure an open and supportive environment for effective programs. Governments need to make AIDS a national priority, not a mere problem to be avoided. By stimulating and supporting abroad multi-sectoral approach that includes all segments of society, governments can create the conditions in which prevention, care and mitigation programs can succeed and protect the country's future development prospects.
- Reviewing current practices to identify approaches that have the potential to aggravate the pandemic and adopting healthy practices to avert these risks of HIV/AIDS.
- Designing appropriate alternative livelihood strategies for those affected by the pandemic to prevent further exploitation and to reduce their vulnerability of being exposed to HIV infection.
- Targeting the youth and working with schools to raise a conscious generation, scaling up existing practices like clubs.
- Promoting inter-generational transfer of indigenous knowledge and culture to prevent HIV/AIDS.

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List of Acronyms and Abbreviations

GDP	Gross Domestic Product
WDR	World Development Report
USAID	United States Agency for International Development
PLWHA	People Living with HIV/AIDS
UNAIDS	United Nation Agency for International Development

Appendix

Appendix Table: 1 Impact of HIV/AIDS on Labor force: Deviation from the base run (in %)

Year	Agricultural out put	Nonagricultural Output	Investment	Private Consumption	Price	Consumers import	Intermediate goods import	Capacity utilization rate	Government Tax Revenue	Government Expenditure	Export	Output
1980/81	-1.9	-1.2	-12.5	-1.0	-3.6	-3.2	-1.6	-0.5	-7.3	-5.9	-2.5	-1.4
1981/82	-1.9	-1.3	-1.7	-1.3	-3.3	-3.4	-1.7	-0.5	-7.5	-6.1	-2.6	-1.5
1982/83	-1.9	-1.4	-2.0	-1.5	-4.0	-3.5	-1.7	-0.6	-7.9	-6.4	-2.6	-1.5
1983/84	-1.9	-1.5	-1.8	-1.6	-2.7	-3.6	-1.8	-0.6	-7.9	-6.5	-2.7	-1.6
1984/85	-2.0	-1.5	-1.6	-1.7	-2.2	-3.8	-1.7	-0.6	-8.3	-6.7	-3.2	-1.6
1985/86	-2.0	-1.6	-1.8	-1.8	-2.0	-3.7	-1.8	-0.6	-8.2	-6.7	-2.9	-1.6
1986/87	-2.0	-1.7	-1.8	-1.8	-2.9	-3.7	-1.8	-0.6	-8.0	-6.6	-3.0	-1.7
1987/88	-2.0	-1.7	-1.9	-1.9	-2.4	-3.9	-1.9	-0.6	-8.1	-6.7	-3.0	-1.7
1988/89	-2.0	-1.8	-2.0	-1.9	-2.4	-3.9	-1.9	-0.6	-8.2	-6.8	-3.2	-1.8
1989/90	-2.0	-1.9	-2.1	-2.0	-2.1	-4.0	-2.0	-0.7	-8.3	-6.9	-3.2	-1.8
1990/91	-2.0	-1.9	-2.0	-2.0	-1.5	-4.2	-2.0	-0.7	-8.2	-6.9	-3.3	-1.8
1991/92	-2.0	-2.0	-1.9	-2.0	-1.0	-4.2	-2.1	-0.7	-8.3	-7.0	-3.3	-1.9
1992/93	-2.1	-2.0	-2.0	-2.1	-1.8	-4.2	-2.1	-0.7	-8.3	-7.1	-3.4	-1.9
1993/94	-1.9	-2.1	-1.0	-2.1	-1.2	-4.1	-2.1	-0.7	-8.3	-6.9	-3.3	-1.9
1994/95	-2.1	-2.1	-2.9	-2.1	-1.2	-4.3	-2.3	-0.7	-8.9	-7.4	-3.3	-2.0
1995/96	-2.1	-2.1	-1.6	-2.2	0.8	-4.1	-1.8	-0.7	-8.2	-6.9	-3.2	-2.0
1996/97	-2.1	-2.1	-1.6	-2.2	2.6	-4.0	-1.9	-0.7	-7.6	-6.5	-3.1	-2.0
1997/98	-2.1	-2.1	-1.8	-2.2	5.5	-4.1	-1.9	-0.7	-7.3	-6.3	-3.1	-2.0
1998/99	-2.1	-2.1	-2.1	-2.2	7.0	-3.9	-2.0	-0.7	-7.2	-6.2	-2.9	-2.0
Average	-2.0	-1.8	-2.4	-1.9	-1.0	-3.9	-1.9	-0.6	-8.0	-6.7	-3.0	-1.8

Source: Survey Result (Daniel 2002)

Biography

The first paragraph may contain a place and/or date of birth (list place, then date). Next, the author's educational background is listed. The degrees should be listed with type of degree in what field, which institution, city, state, and country, and year degree was earned. The author's major field of study should be lower-cased.

Mr. Bizualem Assefa was born on 1988 in Sebeta Woreda, South Western Shewa zone of Oromia regional state of the country Ethiopia. The instructor was graduated from Jimma University with B.Sc degree in Agricultural Economics on June 10, 2010 and with M.Sc degree in Agribusiness and Value Chain Management

(ABVM) on June 25, 2015. He has in general more than seven years of work experience in the higher academic institutions of which exposures in academic activities, researches, community services, creating partnerships, and academic leadership are part and parcel of it. He has experiences in research undertakings and community services; and has been conducting researches of which he published around three articles. He also presented different research works on both national and international conferences of which some of them are available online. He has also done few seminars and make available online for the reader. He authored and makes available two academic modules. He is a member in different professional associations (Ethiopian Economic Associations, Ethiopian Society of Rural Development and Agricultural Extension, and Ethiopian Coffee Science Society).

Beside his regular academic knowledge, he also took number of short term trainings on value chain development, entrepreneurship and value chain management in and outside the country (The Netherlands). He has also adequate experience and usage of statistical software packages (like SPSS, STATA, Gretl EpiData, etc.), and knowledge of statistical and econometric analysis of any problem under his field of specialization. As part of staff of Samara University, he was a project member of the Netherlands NUFFIC project (NICHE/ETH/019) for last five years since 2011.