

Chapter 8

Correlates of Extreme Poverty in Rural Ethiopia

Degnet Abebaw and Assefa Admassie

Abstract This chapter examines the determinants of extreme poverty in rural Ethiopia at the household level using indicators that reflect consumption expenditures, dietary calorie intake, and household assets. The descriptive analyses results indicated that ultra-poverty in the household consumption dimension was positively associated with distance from educational and health facilities, roads, and other infrastructure. The results of an econometric model showed that ultra-poverty was positively and significantly associated with household size and the age of the household head, and inversely associated with the ownership of farming assets and livestock.

Keywords Ethiopia • Ultra-poverty • Consumption expenditures • Nutrition • Asset ownership

8.1 Introduction

In recent years Ethiopia has experienced rapid economic growth (MoFED 2011). Given the country's widespread poverty, high and sustained economic growth is needed to improve the welfare of the population. According to official estimates (MoFED 2011) each 1 % increase in national economic growth decreases the population living in poverty by 1.7 %.

Since the early 1990s the Ethiopian government has undertaken various policy reforms to reduce deep rooted poverty and food security problems. The current government formulated and implemented the 1994 Agriculture-Led Industrialization Strategy (ADLI), the 1995 Constitution (FDRE 1995), and other economy-wide as well as sector, gender, and location oriented development strategies and programs.

D. Abebaw (✉) • A. Admassie
Ethiopian Economic Policy Research Institute, Ethiopian Economics Association,
Addis Ababa, Ethiopia
e-mail: degnet2003@yahoo.com; aadmassie@yahoo.com

The government also began the transition from a planned to a free-market economy immediately after taking power in 1991.

Many of the country's poverty reduction efforts receive financial and technical support from development partners, including bilateral and multilateral donors, NGOs, civic societies, and the private sector. Despite the many efforts to reduce poverty and food insecurity in Ethiopia, the country is still one of the poorest countries in the world, with low per capita income and public health service capacities, and high illiteracy and malnutrition rates. According to the United Nations Development Programme, Ethiopia's human development index score ranked 157th among 169 countries in 2010 (UNDP 2011). While economic growth is necessary to reduce poverty and food insecurity, the extent to which the many forms of poverty are reduced also depends on the equitable distribution of the returns of economic growth. Poverty is still common, particularly in rural areas (MoFED 2008), and the reduction of income discrepancy has been limited. If segments of the population are left aside in the process of development because of political, cultural, or environmental factors, then merely increasing the pace of economic growth is unlikely to reduce poverty or food insecurity.

While the reduction of poverty is the indicated goal of various government policies and programs there is little empirical evidence of their impacts on the well-being of the poorest, whose condition we refer to in this paper interchangeably as either extreme poverty, ultra poverty, or marginality. The main purpose of this paper was to examine the determinants of extreme poverty in rural Ethiopia at the household level using indicators that reflect consumption expenditures, dietary calorie intake, and household asset ownership.

8.2 Marginality: Conceptual Issues

The definitions of marginality are diverse and many. Mehretu et al. (2000, 89) defined marginality as "a complex condition of disadvantage that individuals or communities may exercise because of vulnerabilities which may arise from unequal or inequitable environmental, ethnic, cultural, social, political and economic factors." Gatzweiler et al. (2011, 3) defined marginality as "an involuntary position and condition of an individual or group at the margins of societal, political, economic, ecological and biophysical systems, preventing them from access to resources, assets, services, restraining freedom of choice, preventing the development of capabilities and eventually causing extreme poverty." According to Gatzweiler et al. (2011) marginalized social groups are products of multiple failures of markets, institutions, and policies.

Gurung and Kollmair (2005) described marginality through two major dimensions, societal and spatial. The societal dimension includes demography, religion, culture, social structure, economics, and politics that limit access to resources by individuals or groups. In this respect the focus of discussion is often on the underlying causes of exclusion, inequality, and social injustice

(Gans 1993; Massey 1994; Sommers et al. 1999; Brodwin 2001; Leimgruber 2004; Gurung and Kollmair 2005). Marginalization may be discrimination or suppression on the basis of the societal factors mentioned above in terms of access to livelihood options, participation in social life, and/or public space (Brodwin 2001; Larsen 2002a, b; Gurung and Kollmair 2005). Societal marginality can arise because of population dynamics, political instability, intensification of agriculture, degradation of land resources, poor access to technologies, and limited industrial growth (Gurung and Kollmair 2005).

The spatial dimension of marginality typically results from limited access to centers of development due to location and distance (Sommers et al. 1999; Leimgruber 2004; Müller-Böker et al. 2004; Gurung and Kollmair 2005). In this dimension of marginality the impacts of physical location on the well-being of individuals or groups and the geographical area itself are considered. There is also an *in situ* level of spatial marginality or unequal development within relatively small geographical areas (Sommers et al. 1999).

Societal biases regarding gender, ethnicity, age, or social hierarchy are more prevalent in locations that are remote and isolated from major economic and service centers (Müller-Böker et al. 2004). The International Food Policy Research Institute (IFPRI) characterized the ultra-poor as people living in remote rural areas furthest from roads, markets, schools, and health services with few assets and little education or access to credit, or those who are excluded because of their ethnicity, gender, or disability (IFPRI 2007). The Moro, a remote West African tribe whose members have little education, land, or other assets have been characterized as ultra-poor (Ahmed et al. 2007; von Braun et al. 2009). The predominant social groups among the ultra-poor are women, the disabled, the elderly, and orphans (Ahmed et al. 2007).

Marginality may be dynamic and relative, emerging and evolving over time. Kirkby (2000) asserted that marginality can reinforce itself, but may also be overcome. The ultra-poor may remain poor because of complex factors and/or from being trapped in situations that perpetuate poverty (IFPRI 2007). Marginality is a relative term and may exist in any nation despite economic status; however, the depth and nature of marginality are a function of a nation's economic, political, social, and technological development.

Mehretu et al. (2000) distinguished between contingent and systemic marginality. They describe contingent marginality as a condition of being adversely affected by competitive inequality in free-market dynamics. This form of marginality affects those that are least prepared to successfully negotiate in the marketplace due to living in remote locations, inadequate labor skills, or a lack of useful information about opportunities (Castells 1989). Systemic marginality is created by socially constructed non-market biases often used by a dominant social class to maintain political control, social exclusion and/or economic exploitation over subordinate classes (Gans 1993; Mingione 1996). Tribal-based exclusionary marginalization in Rwanda, Ethiopia, and Sudan are excellent examples of social constructions resulting in systemic marginality (Palmer 1977). Policies designed to redress contingent marginality may be inherently inappropriate for situations of systemic marginality.

8.3 Data and Empirical Approach

8.3.1 Data and Geographic Context

The data used for this paper were obtained from the Central Statistical Agency's (CSA) Welfare Monitoring Survey (WMS) conducted in 2004 (CSA 2007a) and Household Income Consumption and Expenditure (HICE) survey conducted in 2004 and 2005 (CSA 2007b). The WMS provided data on various socioeconomic indicators, including: access to health, education, and nutrition, the utilization of basic facilities and services, and other non-income aspects of well-being. The HICE survey provided data on household income, consumption, and expenditures. With the exception of the regional state of Gambella and parts of Afar and Somali that were all excluded from the WMS and HICE efforts, the datasets covered a nationwide sample of 36,352 (24,152 rural and 12,200 urban) and 21,600 (9,494 rural and 12,106 urban) households respectively. Our analyses focused on the rural household data from both surveys.

We combined and analyzed the WMS and HICE data on household consumption expenditures, dietary calorie intake, and asset ownership to examine the determinants of extreme poverty in rural Ethiopia. The correlates used to characterize the poverty outcomes were a host of household demographic and socioeconomic variables. Most of the data used in our empirical analyses were derived from 9,494 households that were common observation units in both the WMS and HICE efforts.

8.3.2 Empirical Approach

Both qualitative and quantitative methods can be used to analyze marginal poverty.¹ Due to data availability we used quantitative methods, including both descriptive analysis and econometric estimation, to characterize the extreme poverty of the sample households. We used three household well-being indicators to analyze poverty across the survey households: Adult-Equivalent Consumption Expenditure (AECE), Adult-Equivalent Caloric Intake (AECI), and asset ownership.

Household criteria for extreme poverty within the value range of each of these indicators were defined as follows. Based on AECE values, households were designated as extremely poor if consumption expenditures² were in the bottom

¹Gurung and Kollmair (2005) identified various qualitative and quantitative indicators of the degree of marginality. Qualitatively, marginality could be assessed in terms of violations of social and legal norms such as child labor, gender inequality, and social and human rights exclusions. Assessing the existence and magnitude of marginality through qualitative techniques is beyond the scope of this paper because of the lack of appropriate data.

²Consistent with other studies (MoFED 2008), we used a nutrition (calorie) based approach (Dercon and Krishnan 1998).

quintile of the distribution. Regarding AECI, the cut-off point for extreme poverty was designated at 1,600 kcal/day per adult. The asset ownership indicator was based on range of important farming and household assets (Baker and Schuler 2004). We also attempted to accommodate several explanatory household variables in the models based on marginality literature and the data available from the WMS and HICE survey datasets. The household variables considered in the econometric analysis were the following:

Education (Hheduc). The education level of the household head is often a key determinant of household welfare and was measured in the number of years of school completed.

Household size (Hhsize). Land is state property in Ethiopia and per capita land-holding sizes are declining in rural areas, therefore we expected large households (measured by the number of members) to face greater difficulty in meeting nutritional needs.

Marital status of household head (Hhmar). Marriage is a form of social capital and therefore we expected households with single heads (denoted using 0) to be at higher risk of extreme poverty than married household heads (denoted using 1).

Gender (Hhgender). Female-headed households in Ethiopia face multiple disadvantages and thus we expected these households (denoted using 0) to be more vulnerable to extreme poverty than male-headed households (denoted using 1).

Age of household head (Hhage). The age of the household head was used as a proxy for life stage and productivity because older household heads were expected to have greater professional knowledge and experience, and a larger amount of family labor available. We also included a quadratic-term (age square) to capture negative impacts of age after a certain age threshold due to elderliness.

Livestock size (Livestock). Livestock are one of the few common assets and an important source of capital in rural Ethiopia. The relative size of livestock was used in two of the Probit regressions as an explanatory variable with the expectation that households with healthier livestock would be less associated with ultra-poverty.

Farm assets (Farm_material). This index value was calculated through a factor analysis as a continuous variable based on household ownership of agricultural tools and equipment, which we expected to have an inverse relationship with extreme poverty.

Radio ownership (Radio). One of the few means of getting current information relevant to the productivity and well-being of rural households in rural Ethiopia is via radio, therefore we used a dummy variable (1=radio ownership, 0=otherwise) to observe if there was an association between radio ownership and extreme poverty.

Regional dummies. We also included regional dummy variables to observe whether regional differences in geographic, historical, cultural, or socioeconomic factors influenced marginality.

Table 8.1 Regional distribution of the rural household sample

Regional state or city	Number of households	Percentage
Tigray	851	9.0
Afar	419	4.4
Amhara	2,029	21.4
Oromiya	2,325	24.5
Somali	484	5.1
Benishangul-Gumuz	537	5.7
S.N.N.P.	2,000	21.1
Harari	288	3.0
Addis Ababa	276	2.9
Dire Dawa	285	3.0
Total	9,494	100.0

Based on WMS and HICE data from CSA (2007a, b)

8.4 Descriptive Assessment of Poverty Situation

Of the total rural household sample (9,494), 77 % (7,351) were male-headed and 23 % (2,143) were female-headed. The majority of households (88 %) were headed by people aged 15–65 years and the remaining 12 % had older heads. Households with married heads accounted for 78.4 % of the sample, 18.7 % were divorced, separated, or widowed and the remaining 2.9 % had never married. Approximately 73 % of the household heads were illiterate, less than 20 % had completed primary school, and only 8.4 % had attended secondary education or above.

The sample households were located in eight regional states and two city administrations of Ethiopia. The three most populous states, Oromiya, Amhara and SNNP, accounted for two-thirds of the sample. Sample households from rural areas of the two city administrations, Addis Ababa and Dire Dawa, constituted around 6 % of the total sample. The remaining 28 % were drawn from the other regional states, the least developed of which (Afar, Benishangul-Gumuz, and Somali), accounted for around 15 % of the total (Table 8.1).

8.4.1 Consumption Expenditures and Dietary Calorie Intake

Consumption expenditures and caloric intake are two important indicators of household well-being. According to HICE survey data the mean household AECE in 2004–2005 was Birr 2,217.26 or US\$256.33 (see Table 8.2). The distribution revealed significant disparity, ranging from Birr 1,078.46 (US\$124.68) in the lowest quintile to Birr 4,018.07 (US\$464.07) in the highest quintile, indicating a nearly four-fold difference among rural households. Table 8.2 presents the AECI values separated by AECE quintiles to examine the association between consumption expenditures and caloric intake among the survey households. Households in the

Table 8.2 Consumption expenditures and calorie intake distributions by AECE quintile

AECE quintile	Consumption expenditure (average in Birr)	Daily calorie intake (average in kcal)
1	1,078.46	1,825
2	1,549.97	2,485
3	1,981.34	3,012
4	2,458.64	3,332
5	4,018.07	3,899
Average	2,217.26	3,332

Based on HICE data from CSA (2007b)

Table 8.3 Regional distribution of daily household AECI values

Regional state or city	Net daily kilocalories			Deviation from national mean
	Less than 1,600	Between 1,600 and 2,200	More than 2,200	
Tigray	10.9	24	65.1	-6.8
Afar	24.7	29.8	45.5	-7.5
Amhara	15.5	17.4	67.1	-9.8
Oromiya	9.1	19.5	71.4	+4.7
Somali	8.3	26.5	65.3	-3.4
Benishangul-Gumuz	18.8	19	62.2	-5.6
SNNPR	9.1	19.2	71.7	+5.7
Harari	4.7	15.7	79.7	+15.1
Addis Ababa	9.1	23.6	67.3	-1.7
Dire Dawa	7.2	20.4	72.4	+4.2
Nationwide	11.2	16.2	69.6	-

Based on WMS and HICE data from CSA (2007a, b)

lowest AECE quintile also had AECI values that were about half that of the highest AECE quintile. The greater disparity of AECE values compared to AECI values suggests that poorer households rely on cheaper and higher calorie dietary items (Table 8.3).

Table 8.4 presents the regional distribution of expenditure-based and diet-based poverty in Ethiopia. As the table shows, diet-based poverty was nearly as high as expenditure-based poverty in all regions. Mean expenditure-based poverty was 39 % in 2004–2005. Mean diet-based poverty was 38 % during the same period.

As indicated in Table 8.4 the relative amounts of extreme poverty based on AECE and AECI appear to be the highest in the regional states of Tigray, Benishangul-Gumuz, Somali, Afar, and Amhara. With the exception of Afar these states also had the greatest overall poverty gap and squared poverty gap index values in the country (MoFED 2008), indicating income shortfalls for meeting basic nutritional need.

Table 8.4 Regional poverty variation in Ethiopia

Regional state or city	Expenditure-based poverty	Diet-based poverty	Overall poverty gap	Overall squared poverty gap
Tigray	0.51	0.48	0.104	0.032
Afar	0.429	0.436	0.078	0.021
Amhara	0.404	0.391	0.104	0.036
Oromiya	0.372	0.371	0.075	0.024
Somali	0.452	0.439	0.099	0.03
Benishangul-Gumuz	0.458	0.459	0.106	0.035
SNNP	0.382	0.369	0.071	0.022
Harari	0.206	0.184	0.033	0.007
Addis Ababa	0.299	0.316	0.052	0.012
Dire Dawa	0.398	0.384	0.063	0.015
Nationwide	0.393	0.385	0.085	0.027

Adapted from MoFED (2008)

Diet-based poverty includes households with daily dietary intake of 1,600 kcal or less per adult

Table 8.5 Major reasons for not seeking health care among rural households by AECE quintile

AECE quintile	Gender	No need to consult	Financially incapable	Distance	Other
1	Male	38.8	9.6	1.1	0.55
	Female	37.4	10.5	1.2	0.69
	Total	76.3	20.1	2.3	1.24
2	Male	40.5	8.1	1.1	0.81
	Female	38.3	9.1	1.2	0.73
	Total	78.8	17.2	2.4	1.54
3	Male	39.9	7.1	1.2	0.88
	Female	40.2	8.5	1.1	0.96
	Total	80	15.6	2.3	1.85
4	Male	41.8	6.2	0.9	0.67
	Female	39.6	8.3	1.3	1
	Total	81.4	14.4	2.2	1.69
5	Male	40.3	7.2	1	1.03
	Female	39.1	9.1	0.8	1.34
	Total	79.5	16.3	1.8	2.36

Based on WMS and HICE data from CSA (2007a, b)

8.4.2 Health and Medical Services

Household health conditions and the utilization of health care varied among AECE quintiles. The incidence of illness was higher in the bottom quintile than the top quintile; however, health care service utilization was greater for the top than for the bottom quintile households. This suggests that access to health care is inversely related to income in rural areas of Ethiopia. The main reasons cited for not seeking health care despite justifiable need included: the lack of financial resources, distance, and lack of awareness of health care services (see Table 8.5). An inverse

Table 8.6 Percentage of childbirths by type of assistance and AECE quintile

Support provider	AECE quintile					Total
	1	2	3	4	5	
Health care professionals	0.7	1.3	1.9	4.5	26.6	5.7
Traditional attendant	36.8	27.5	26.8	25.4	21.9	28.1
Relative or others	55.2	64.9	66.7	65.2	46.6	60.5
None	6.9	6.1	4.4	4.7	4.7	5.4
Total (%)	100	100	100	100	100	100

Based on WMS and HICE data from CSA (2007a, b)

Table 8.7 Educational status of household heads by AECE quintile

AECE quintile	Illiterate	Primary (1–6)	Primary (7–8)	Secondary		Total
				and above	Other	
1	74.2	18.3	2.3	0.8	4.4	100.0
2	72.0	20.5	2.5	1.1	3.8	100.0
3	73.0	17.8	3.1	1.7	4.4	100.0
4	71.3	20.0	2.6	2.0	4.1	100.0
5	66.4	22.3	3.2	4.1	2.8	100.0

Based on CSA (2007a)

relationship between health care and household consumption expenditure was also observed for childbirth services.

In general the percentage of births attended by health professionals in Ethiopia is extremely low by global standards (World Bank 2005). As might be expected, the vast majority (88.7 %) of women gave birth at home with the assistance of relatives and traditional midwives rather than at medical facilities attended by health care professionals (see Table 8.6). Births assisted by health care professionals tended to increase with asset ownership. For instance the percentage of births assisted by health professionals for women in the fifth quintile was over 25 percentage points higher than for women in the lowest quintile. This suggests that apart from supply-side policy interventions to expand health care facilities, demand-side policy interventions for increasing household assets may contribute to increased health care utilization among pregnant women.

8.4.3 Educational Status

Generally speaking the education and literacy of household heads increased from the lowest to the highest AECE quintile. The percentage of literate household heads increased from around 26 % in the lowest quintile to around 34 % in the highest quintile. The proportion of household heads with secondary schooling or above increased by more than four-fold from the lowest to highest quintiles (see Table 8.7).

Table 8.8 Probit estimations based on household consumption expenditures

Variables	Probit regression		Marginal effect	
	Coefficient	SE	Coefficient	SE
Hhsize	0.2924	0.0099***	0.0702	0.0024***
Hhgender	-0.0524	0.0634	-0.0127	0.0157
Hhage	0.0152	0.0073*	0.0029	0.0017*
Hhagesquare	-0.0001	0.00007	-0.00002	0.00002
Hheduc	-0.1562	0.0321***	-0.0375	0.0077***
Hhmar	-0.076	0.068	-0.0186	0.0171
Radio	-0.3505	0.0476***	0.0757	0.091***
Livestock	-0.2355	0.0293***	-0.0565	0.00703***
Farm_material	-0.0772	0.0274***	-0.0185	0.00661***
Regional dummy variables				
Tigray	0.0042	0.113	0.0102	0.0288
Afar	-0.0627	0.1273	0.0146	0.02681
Amhara	0.0935	0.1060	0.0023	0.02681
Oromiya	-0.5643	0.1073***	-0.01164	0.0187***
Somali	0.0836	0.1211	0.03208	0.0313
BenishangulGumuz	-0.4344	0.1256***	-0.0845	0.0190***
SNNPR	-0.2136	0.1072**	-0.0480	0.02256**
Harari	-0.7145	0.1567***	0.1175	0.0154
Dire Dawa	-0.0557	0.1353	-0.013	0.01629***
Constant	-2.2182	0.1912***		
Number of observations				8,825
Log Pseudo likelihood				-3,676.76
Wald chi ² (10)				1,155.39
Pseudo R ²				0.165
Percent of households predicted correctly				70.4

Based on WMS and HICE data from CSA (2007a, b)

***, **, * denote statistical significance at 1, 5, and 10 %, respectively, Addis Ababa is the reference region

8.4.4 Probit Estimation Results and Discussion

We used three binary probit models to estimate the correlates of extreme poverty as measured by the three household well-being indicators; consumption expenditure, calorie intake and asset ownership. We defined the dependent variables of these models as follows. For consumption expenditure the dependent variable was coded one if the household was in the lowest AECE quintile and zero otherwise. For calorie intake the dependent variable was coded one if the daily household AECE was below 1,600 kcal and coded zero if otherwise. For asset ownership the dependent variable was coded one for households in the lowest index quintile and coded zero if otherwise. The estimation results are presented in Tables 8.8, 8.9 and 8.10. The overall fit of the estimated models was good. The pseudo R² values ranged 0.11–0.20 and correct predictions varied 66–74 %.

Table 8.9 Probit estimations based on household dietary caloric intake

Variables	Probit regression		Marginal effect	
	Coefficient	SE	Coefficient	SE
Hhsize	0.2152	0.0102***	0.0354	0.0017***
Hhgender	-0.0272	0.0709	-0.0045	0.0119
Hhage	0.0081	0.0081	0.0013	0.0013
Hhagesquare	-0.00006	0.00008	-0.000010	0.00001
Hheduc	-0.0093	0.03278	-0.00153	0.00539
Hhmar	-0.2255	0.075***	-0.0406	0.0147***
Radio	-0.1089	0.0500**	0.0172	0.00755**
Farm_material	-0.3351	0.0311	-0.0055	0.0051
Livestock	-0.1995	0.0330***	-0.0328	0.0054
Regional dummy variables				
Tigray	0.2871	0.1425***	0.0549	0.0311*
Afar	0.8303	0.1499***	0.2095	0.0503***
Amhara	0.6416	0.1341***	0.1329	0.0336***
Oromiya	0.1125	0.1347	0.0192	0.0239
Somali	0.1381	0.1577	0.0246	0.0303
Benishangul-Gumuz	0.5629	0.1468***	0.1253	0.0413***
SNNPR	0.1788	0.1361	0.03145	0.0256
Harari	-0.1842	0.1950	-0.0269	0.0250
Dire Dawa	-0.07121	0.1761	-0.0122	0.03155
Constant	-2.594	0.2226***		
Number of observations				8,824
Log Pseudo likelihood				-2,812.26
Wald chi ² (17)				648.48
Pseudo R ²				0.1133
Percent of households predicted correctly				66.8

Based on WMS and HICE data from CSA (2007a, b)

***, **, * denote statistical significance at 1, 5 and 10 %, respectively, Addis Ababa is the reference region

Household expenditure-based poverty. Table 8.8 presents the results of the probit analysis of the correlates of household expenditure-based poverty. Larger households were more likely to be ultra-poor than smaller households *ceteris paribus*. The effect of household head gender was not significant. The marital status of the household head had a negative association with extreme poverty but was not significant. As expected, education of the household head had a negative but not statistically significant association with household ultra-poverty. The ownership of a radio had a negative and significant relationship with ultra-poverty. Household asset ownership was negatively associated with ultra-poverty. The estimation results also revealed strong associations between location and ultra-poverty: most of the regional dummy variables had negative and significant associations with the dependent variable.

Household diet-based poverty. Table 8.9 shows the relationships between household variables and diet-based extreme poverty. About 12 % of the sample households qualified as marginalized based on caloric intake. In contrast to the

Table 8.10 Probit estimation based on household assets

Variables	Probit regression		Marginal effect	
	Coefficient	SE	Coefficient	SE
Hhsize	-0.1892	0.0111***	-0.0440	0.0024***
Hhgender	-0.5974	0.0512***	-0.1621	0.0157***
Hhage	-0.0335	0.0061***	-0.0078	0.0015***
Hhagesquare	0.00030	0.00006***	0.00007	0.00001***
Hheduc	0.2386	0.0246***	0.0555	0.0057
Hhmar	-0.3884	0.0571***	-0.1017	0.0166***
Regional dummy variables				
Tigray	-0.1553	0.1121	-0.0696	0.0195***
Afar	0.4188	0.1206***	0.1164	0.0405***
Amhara	-0.4059	0.1076**	-0.0834	-0.0194***
Oromiya	0.1418	0.1069	0.0318	0.0231
Somali	0.2312	0.1257*	0.0596	0.0375*
Benishangul-Gumuz	0.2034	0.1222*	0.0518	0.0337
SNNPR	0.02162	0.107	0.0051	0.0253
Harari	0.1297	0.1404	0.0283	0.02861
Dire Dawa	0.1949	0.1392	0.041	0.0264
Constant	1.509	0.1717***		
Number of Observations				8,860
Log Pseudo likelihood				-3,549.22
Wald chi ² (15)				1,336.06
Pseudo R ²				0.1995
Percent of households predicted correctly				72.02

Based on WMS and HICE data from CSA (2007a, b)

***, **, * denote statistical significance at 1, 5, and 10 %, respectively, Addis Ababa is the reference region

consumption expenditure model, most of the regional dummy variables had positive and significant relationships, indicating greater likelihood of diet-based extreme poverty among households in the regional states of Tigray, Afar, Amhara, and Benishangul-Gumuz compared to rural households located near the capital. There was a negative and significant relationship between married household heads and diet-based extreme poverty.

Household asset-based poverty. Unlike the expenditure and caloric intake based model results, the age, educational status, and gender of the household head all had unexpected association signs with extreme poverty with respect to household assets. The probability of asset-based extreme poverty was less likely among female-headed households compared to male-headed households. The incidence of asset-based extreme poverty was also more prevalent for households with literate heads. Compared to the capital city, households in Afar, Somali, and Benishangul-Gumuz were more likely to be ultra-poor based on asset ownership, whereas those in Amhara were less likely. The variability of the relationships of the regional dummy variables with asset-based extreme poverty may be due to geographic variability in the functional value of farming assets. In most parts of Afar, Somali, and some parts of Benishangul-Gumuz farming equipment is relatively unimportant because most

of the people in these regions are pastoralists who rely little on farm tools and equipment that are vital for sedentary crop-based agriculture.

8.5 Conclusion

The descriptive results indicated that ultra-poverty based on the household expenditure dimension was positively associated with distance from educational and health facilities, roads, and other infrastructure. The descriptive results also revealed considerable overlap of the different indicators of ultra poverty or marginality among the sample households. In particular, ultra-poor households in terms of expenditures also tended to be ultra-poor in terms of dietary caloric intake and asset ownership. The incidence of ultra poverty exhibited significant variation across the different regions in the country.

The results of the probit models indicated several interesting results. Ultra poverty based on the household expenditure dimension was positively and significantly associated with household size and the age of the household head, and inversely with the ownership of farming assets and livestock. Ownership of a radio and the education level of household heads were both inversely associated with expenditure-based extreme poverty. Many of the key factors that were associated with expenditure-based extreme poverty were similarly associated with diet-based extreme poverty; however, the relationships of education of the household head and farming assets did not have statistically significant relationships with diet-based extreme poverty. There was a negative and significant relationship between married household heads and diet-based extreme poverty. Unlike the results for expenditure-based and diet-based extreme poverty, household size had a negative and statistically significant association with asset-based ultra-poverty. There was also a negative and statistically significant association between female household heads and asset-based poverty. Also contrary our expectation, the incidence of asset-based extreme poverty was positively associated with the education level of the household head. In all three poverty dimensions most of the regional dummy variables were strongly associated with extreme poverty, suggesting considerable marginality in rural areas throughout the country.

Open Access This chapter is distributed under the terms of the Creative Commons Attribution Noncommercial License, which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

References

- Ahmed AU, Hill RV, Smith LC, Wiesmann DM, Frankenberger T (2007) The world's most deprived: characteristics and causes of extreme poverty and hunger. 2020 discussion paper 43, International Food Policy Research Institute, Washington, DC
- Baker J, Schuler N (2004) Analyzing urban poverty: a summary of methods and approaches. World Bank Policy Research working paper no 3399, World Bank, Washington, DC

- Brodwin P (2001) Marginality and cultural intimacy in a trans-national Haitian Community. Occasional paper no. 90, Department of Anthropology, University of Wisconsin, Milwaukee
- Castells M (1989) *The information city*. Blackwell, Oxford
- CSA (2007a) *Welfare Monitoring Survey 2004*. Statistical report on basic population characteristics, education, health, nutritional status and child care. Statistical bulletin, Central Statistical Authority, Addis Ababa
- CSA (2007b) *2004–05 Household income, consumption and expenditure survey*. Statistical bulletin 394, Central Statistical Authority, Addis Ababa
- Dercon S, Krishnan P (1998) *Changes in poverty in rural Ethiopia 1989–1995: measurement, robustness tests and decomposition*. Center for the Study of African Economies WPS/98–7, Centre for the Study of African Economies, University of Oxford, Oxford
- FDRE (1995) *Constitution*. Federal Democratic Republic of Ethiopia, Addis Ababa
- Gans HJ (1993) From underclass to undercaste—some observations about the future of the postindustrial economy and its major victims. *Int J Urban Reg Res* 17:327–335
- Gatzweiler F, Baumüller H, von Braun J, Ladenburger C (2011) *Marginality: addressing the root causes of extreme poverty*. ZEF working paper no 77, Center for Development Research, University of Bonn, Bonn
- Gurung GS, Kollmair M (2005) *Marginality: concepts and their limitations*. IP6 working paper, Swiss National Centre of Competence in Research North South, Bern
- IFPRI (2007) *Taking action for the World's Poor and Hungry People: the 2020 conference at a Glance*, Beijing, 17–19 October 2007. International Food Policy Research Institute, Washington, DC
- Kirkby J (2000) *Land degradation and development, optimism or pessimism?* SAPES Trust, Harare
- Larsen JE (2002a) *Who cares about and for marginal people?* Danish Social Science Research Council, Copenhagen. <http://www2.ihis.aau.dk/gep/publicationer/nr3.pdf>. Accessed 12 Apr 2011
- Larsen JE (2002b) *Spatialization and culturalization of social policy: conducting marginal people in local communities*. Paper presented at the area-based initiatives in contemporary urban policy conference, Copenhagen, 17–19 May 2001. Danish Building and Urban Research Association, Copenhagen
- Leimgruber W (2004) *Between global and local: marginality and marginal regions in the context of globalization and deregulation*. Ashgate Publishing, Farnham
- Massey D (1994) *Space, place and gender*. University of Minnesota Press, Minneapolis
- Mehretu A, Pigozzi BW, Sommers LM (2000) Concepts in social and spatial marginality. *Geogr Ann* 82(2):89–101
- Mingione E (1996) *Urban poverty in advanced industrial world: concepts, analysis and debates*. In: Mingione E (ed) *Urban poverty and the underclass*. Blackwell, Oxford
- MoFED (2008) *Dynamics of growth and poverty in Ethiopia (1995/96–2004/05)*. Ministry of Finance and Economic Development, Addis Ababa
- MoFED (2011) *Ethiopia five years (2010/11–2015/16): growth and transformation plan*. Ministry of Finance and Economic Development, Addis Ababa
- Muller-Böker U, Geiger D, Kansakar VBS, Kollmair M, Molesworth K, Suleri A (2004) *Sustainable development in marginal regions of South Asia*. In: Hurni H, Wiesmann U, Schertenleib S (eds) *Research for mitigating syndromes of global change: a trans-disciplinary appraisal of selected regions of the world to prepare development—oriented research partnership*. Schlaefli and Maurer Publishing, Bern
- Palmer RH (1977) *Land racial discrimination in Rhodesia*. University of California Press, Berkeley
- Sommers LM, Mehretu A, Pigozzi BW (1999) *Towards typologies of socio-economic marginality: north/south comparisons*. In: Jussila H, Majoral R, Mutambirwa C (eds) *Marginality in space—past, present and future: theoretical and methodological aspects of cultural, social and economic parameters of marginal and critical region*. Ashgate Publishing, Farnham
- UNDP (2011) *Human development report 2011*. United Nations Development Programme, New York

- von Braun J, Hill RV, Pandya-Lorch R (2009) The poorest and the hungry: a synthesis of analyses and actions. In: von Braun J, Hill VR, Pandya-Lorch R (eds) *The poorest and hungry: assessments, analyses, and actions*. International Food Policy Research Institute, Washington, DC, pp 1–61
- World Bank (2005) *Ethiopia: a country status report on the health and poverty*. Volume II, report no. 28963-ET, World Bank, Washington, DC