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APPENDIX A: HECKMAN WAGE REGRESSION ESTIMATES

Participation Equation

Variables	Coef
Age	-0.371 (0.31)
Sex of the household head	-0.213 (0.21)
Distance to town in km	0.097 (0.11)
Livestock ownership in TLU	-0.322*** (0.13)
Land size in hectare	-0.569*** (0.18)
Location dummy 1 for Amhara & Tigray , 0 otherwise	0.368*** (0.13)
Number of children under five	-0.108 (0.07)
Average schooling level of the family	0.090*** (0.03)
Amount of Nonlabor income	-0.005 (0.02)
Number of male members of the family	0.016 (0.04)
Constant	1.023 (1.12)

The dependent variable (wage rate), age, land size, distance to town (in the participation equation) and non- labour income are in log form.

Wage Regression Equation

Variables	Coef.
Average schooling level of the family	0.062** (0.03)
Distance to town in km	-0.020** (0.01)
Location dummy 1 for Amhara & Tigray , 0 otherwise	0.232 (0.15)
Whether any member of the family has attended any type of training or not	-0.112 (0.13)
Number of male members of the family	-0.093** (0.04)
Inverse mills ratio	2.18** (0.99)
Constant	1.35* (0.70)

APPENDIX B. PARTICIPATION IN COLLECTION FROM COMMUNAL FORESTS

Variable	Coef
Predicted wage	-0.360
	(0.43)
Distance to town in km	0.103***
	(0.02)
Land size in hectare	-0.071
	(0.16)
Education of the HH head	-0.222**
	(0.12)
Government rules	0.114
	(0.11)
Family size in adult equivalent	-0.029
	(0.03)
Distance to market in km	-0.081***
	(0.02)
A dummy variable if the head is a member of any organization	0.137
	(0.12)
Forest Access	-0.053**
	(0.03)
Biomass availability	0.001
	(0.00)
Constant	0.820
	(1.18)

APPENDIX C. SELECTION REGRESSION OF TIME SPENT PER UNIT OF FUEL WOOD COLLECTED IN COMMUNAL FORESTS

Variable	Coef
Predicted wage	0.014
	(0.06)
Land size in hectare	0.017
	(0.02)
Education of the HH head	0.026
	(0.03)
Distance to town in km	-0.008
	(0.01)
Government rules	-0.026*
	(0.02)
Family size in adult equivalent	0.002
	(0.01)
Distance to market in km	0.008*
	(0.00)
A dummy variable if the head is a member of any organization	-0.034*
	(0.02)
Forest Access	0.002
	(0.01)
Inverse mills ratio	-0.181
	(0.45)
Constant	0.253
	(0.22)

APPENDIX D. PARTICIPATION IN DUNG COLLECTION

Variable	Coef
Collection time	1.598 (4.77)
Wage rate (predicted)	1.602** (0.76)
Education of the HH head	-0.095 (0.17)
Sex of HH head	-0.275 (0.26)
Amount of Nonlabor income	0.000 (0.00)
Livestock ownership in TLU	-0.154 (0.15)
Land size in hectare	-0.786*** (0.30)
Family size in adult equivalent	0.123** (0.05)
Government rules	0.062 (0.20)
Forest Stock	0.002 (0.01)
Biomass availability	-0.023* (0.02)
Forest Access	-0.067* (0.05)
Average schooling level of the family	-0.082* (0.06)
Constant	-3.210* (2.12)



APPENDIX E. PARTICIPATION IN CROP RESIDUE COLLECTION

Variable	Coef
Collection time	-0.079
	(3.53)
Wage rate (predicted)	0.012
	(0.32)
Education of the HH head	-0.185*
	(0.14)
Sex of HH head	0.314*
	(0.23)
Amount of Nonlabor income	0.000
	(0.00)
Livestock ownership in TLU	-0.214**
	(0.12)
Land size in hectare	0.263*
	(0.17)
Family size in adult equivalent	0.040
	(0.04)
Government rules	-0.739***
	(0.14)
Forest Stock	-0.020***
	(0.01)
Biomass availability	0.001
	(0.00)
Forest Access	0.201***
	(0.05)
Average schooling level of the family	0.017
	(0.03)
Constant	-0.597
	(1.03)

Appendix F: Institutional indicators used for constructing institutional index

Indicators of institutional variables at household level	Mean
INSVAR1	
Is there any system for controlling fuel wood collection from communal lands	2.6774
INSVAR2	
Is the amount of fuel wood collected on communal lands limited?	3.8367
INSVAR3	
Do the kebele officials follow who takes products of forest from the communal lands.	2.646166
INSVAR4	
Is there a penalty if someone takes fuel wood beyond the amount?	2.671268
Average institutional index	2.974268

Note: Average institutional index for the household i is calculated as $I_H = \frac{\sum INSVAR_i}{4}$ and the average index for the community is calculated as $I_C = \frac{\sum I}{N}$, where N is the number of households in a community.

Appendix G: One way ANOVA for testing whether the means of some of the variables are different across the different fuel wood sources

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Dummy for Education	Between Groups	4.129	4	1.032	4.166	0.002
	Within Groups	381.595	1540	0.248		
	Total	385.724	1544			
size of land	Between Groups	56.432	4	14.108	16.989	.000
	Within Groups	1278.836	1540	0.83		
	Total	1335.268	1544			
Numberof livestock	Between Groups	619.457	4	154.864	17.773	.000
	Within Groups	13418.801	1540	8.714		
	Total	14038.259	1544			
Dummy for certificate	Between Groups	4.834	4	1.209	7.568	.000
	Within Groups	245.942	1540	0.16		
	Total	250.777	1544			
Dummy for region	Between Groups	13.96	4	3.49	14.456	.000
	Within Groups	371.801	1540	0.241		
	Total	385.761	1544			
Distance of forest	Between Groups	49.575	4	12.394	2.739	0.027
	Within Groups	6969.413	1540	4.526		
	Total	7018.988	1544			
A dummy for Institutions	Between Groups	10.134	4	2.533	10.393	.000
	Within Groups	375.39	1540	0.244		
	Total	385.524	1544			