

## **Poverty, forest dependence and forest degradation links: evidence from Zagros, Iran**

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## **ONLINE APPENDIX**

Table A1. *Ghamishale and Tange Tamoradi: general statistics*

<b>General statistics</b>	<b>Ghamishale</b>	<b>Tange Tamoradi</b>
Area (ha)	2784	6952
Irrigated cropland (ha)	114.8	473.5
Rain-fed cropland (ha)	25.2	149.5
Number of villages	2	18
Number of households	69	198
Population	221	1263
Population density (people per km <sup>-1</sup> )	8.0	18.2
Population growth rate period 1996–2006 (%)	-3	-3
Number of livestock units (NLUs)*	3326	7856
Number livestock units (NLUs) permitted	3925	3546
Density of livestock (NLUs/ha of total area)	1.19	1.13
Grazing capacity (NLUs/ha of total area)	1.41	0.51
Distance to nearest main road (km)	5.0	6.5
Distance to provincial capital (km)	20.0	45.0

*Notes:* \*Number of livestock units owned by households (1 goat = 0.75 NLU; 1 sheep = 1 NLU, 1 domesticated cow = 5 NLU, 1 dairy cow = 10 NLU)

*Source:* Organization of Nomads Affairs, 1996

Table A2. *Different traditional uses and practices related to forests in Ghamishale and Tange Tamoradi*

<b>Traditional forest uses</b>	<b>Ghamishale</b>	<b>Tange Tamoradi</b>
Tree lopping	Family-owned traditional forest territory (Private right)	Not implemented
Collection of grass	Family-owned traditional forest territory (Private right)	Not implemented
Cutting trees for firewood	Family-owned traditional forest territory (Private right)	Village-owned traditional forest territory (Public right)
	Village-owned traditional forest territory (Public right)	
Collection of non-wood forest products	Village-owned traditional forest territory (Public right)	Village-owned traditional forest territory (Public right)
Grazing	Village-owned traditional forest territory (Public right)	Village-owned traditional forest territory (Public right)

Table A3. *Independent variables and their definitions*

<b>Variable</b>	<b>Definition</b>	<b>Literature</b>
<i>Household asset holdings</i>		
Education	Average number of years of household members' education (years)	Salehi (2009)
Adult labour	Number of household members older than 16 years and younger than 65 years	Adhikari et al. (2004); Mamo et al. (2007)
Training skill	Coded 1 if any household member has received training in conservation, agricultural, or other programme, otherwise coded 0 (dummy)	Jansen et al. (2006)
Irrigated land	Size of the household's own agricultural land (ha)	Adhikari et al. (2004) Adhikari et al. (2004); Babulo et al. (2008); Fisher (2004); Fu et al (2009); Kamanga et al. (2009);
Financial Capital	Access to loan and credit, coded 1 if household has had access to loan or credit during the last five years, otherwise coded 0 (dummy)	Babulo et al. (2008)
Physical capital	Whether household owns machinery and equipment for production, e.g. truck, tractor, or water pump, coded 1 if a household owns any machinery or equipment, otherwise coded 0 (dummy)	Ellis (2000) Jansen et al. (2006)
<i>Ecological condition and population density</i>		
Forest biomass availability	Forest stock volume divided by the number of households, based on traditional forest boundaries (ratio)	Narain et al. (2008)
<i>Institutional arrangement</i>		
Site	Coded 1 if households live in Ghamishale, and 0 if households live in Tange Tamoradi (dummy)	

Table A4. *Final clusters and summary statistics of factor analysis variables*

Variable	Full sample (n = 134)		Not-dependent (n = 9)		Fodder- firewood (n = 70)		Fodder (n = 55)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Firewood dependence	0.08	0.09	0.06 <sup>(2,3)</sup>	0.07	0.13 <sup>(1,3)</sup>	0.09	0.08 <sup>(1,2)</sup>	0.09
Fodder dependence	0.26	0.16	0.00 <sup>(2,3)</sup>	0.01	0.21 <sup>(1,3)</sup>	0.11	0.38 <sup>(1,2)</sup>	0.13
NWFP* dependence	0.01	0.01	0.02 <sup>(2,3)</sup>	0.05	0.01 <sup>(1,3)</sup>	0.00	0.01 <sup>(1,2)</sup>	0.01

*Notes:* \*Non-wood forest products; <sup>(1, 2, 3)</sup> statistically significant difference between cluster no. x and the column cluster at 95% level; SD = standard deviation.

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