

# **The insurance premium in the interest rates of interlinked loans in a small-scale fishery**

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**ONLINE APPENDIX**

## A Appendix

### A.1 Descriptive statistics

Table A1. Descriptive statistics loans

	All loans				
	count	mean	sd	min	max
Interest rate [p.a.]	319	0.385	0.254	0.020	1.680
Log(A)	319	9.839	0.802	6.908	12.612
Consumption loan	319	0.191	0.394	0	1
Fishing loan	319	0.545	0.499	0	1
Maturity	319	0.464	0.499	0	1
	Interlinked loans				
Interest rate [p.a.]	52	0.485	0.399	0.039	1.680
Log(A)	52	10.218	0.866	8.006	12.206
Consumption loan	52	0.038	0.194	0	1
Fishing loan	52	0.942	0.235	0	1
Maturity	52	0.000	0.000	0	0
	Other loans				
Interest rate [p.a.]	267	0.366	0.211	0.020	1.230
Log(A)	267	9.765	0.770	6.908	12.612
Consumption loan	267	0.221	0.416	0	1
Fishing loan	267	0.468	0.500	0	1
Maturity	267	0.554	0.498	0	1

Loan Amount ‘A’ measured in Rs, Maturity: Dummy, equal to one if a repayment date is fixed; Consumption loan: Dummy, equal to one if loan purpose is consumption (among others); Fishing loan: Dummy, equal to one if loan purpose is fishing (among others)

### A.2 Additional Tables

Table A2. FE regression results for interest rates, different specifications.

	(1)	(2)	(3)	(4)	(5)
Dependent variable:	with other informal loan dummy	without amount	without maturity	without formal loan dummy	only recent loans
Interest rate					
Interlinked Dummy	1.030 (0.504)	-2.447* (0.060)	0.0698 (0.956)	0.630 (0.664)	0.841 (0.655)
V x Interlinked	0.671*** (0.006)	0.727*** (0.009)	0.513** (0.014)	0.462* (0.051)	0.880** (0.025)
Log( $\mu$ ) x Interlinked	0.338** (0.022)	0.196* (0.080)	0.330** (0.020)	0.302* (0.053)	0.319* (0.072)
Log(A)	0.121 (0.216)		0.0343 (0.436)	0.0452 (0.328)	0.0642 (0.270)
Log(A) x Interlinked	-0.492*** (0.004)		-0.380*** (0.002)	-0.398*** (0.001)	-0.458*** (0.001)
Maturity	0.0140 (0.829)	-0.0119 (0.835)		-0.0673* (0.091)	0.0145 (0.805)
Formal loan	-0.167* (0.094)	-0.195** (0.015)	-0.159*** (0.002)		-0.153** (0.039)
Y2009	-0.00827 (0.930)	-0.0634 (0.603)	0.0118 (0.901)	0.0137 (0.879)	
Y2010	-0.00604 (0.910)	-0.00801 (0.920)	-0.00542 (0.920)	-0.0169 (0.763)	-0.00200 (0.970)
Other informal	1.451 (0.180)				
Other informal x V	0.164 (0.356)				
Other informal x log( $\mu$ )	-0.0284 (0.668)				
Other informal x log(A)	-0.139 (0.143)				
Constant	-0.707 (0.475)	0.519*** (0.000)	0.137 (0.765)	-0.0212 (0.965)	-0.176 (0.770)
Observations	151	151	151	151	129
Adjusted $R^2$	0.378	0.189	0.373	0.336	0.363

$p$ -values in parentheses; \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ; error terms clustered at household level.

Table A3. Comparing indebted households with and without interlinked loan, n=234

	With interlinked loan	Without interlinked loan	p-value Welch Two Sample t-test*
Mean yearly fishing income	66,820 Rs	64,010 Rs	0.7828
Average asset index	-0.008	0.020	0.8571
Average coefficient of variation	0.48	0.51	0.4944
Value fishing assets	97	111	0.2817
Number of observations	52	182	

The asset index of a household is the first component from a principal component analysis based on different assets (here: Bike, Motorbike, Mobile Phone, TV/Radio, House, Land, all measures being normalized by subtracting the mean and dividing by the standard deviation) based on Filmer and Pritchett (2001). It is positively correlated with wealth.

\*:  $H_0$  is the equality of means.

### A.3 Additional Results of OLS estimation

For the OLS specification, the same robustness checks are performed as were performed for the FE specification. In the OLS specifications, the coefficient of ‘Other informal x V’ is positive and significant (see column (1) of table A4). At first sight, this suggests that other informal loans also play an insurance role. Unlike before, the impact of the Coefficient of Variation ‘V’ in this specification is significant and negative. In absolute terms, the magnitude of its coefficient is similar to the magnitude of the coefficient of the interacted term. It turns out that the sum of both effects is not significantly different from zero (see table A5). Overall, the income volatility has no significant impact on interest rates from other informal loans. The overall effect of income volatility on the interest rates from interlinked loans is significantly different from zero at the 10 percent level (see table A5). For the remaining robustness checks based on OLS, qualitative results are as for the FE specification.

Table A4. OLS regression results for interest rates, modified

Dependent variable:	(1)		(2)	
Interest rate	with other informal loan dummy		only recent loans	
	Coeff	(p-value)	Coeff	(p-value)
Interlinked Dummy	0.389	(0.574)	0.572	(0.493)
V x Interlinked	0.332**	(0.010)	0.301**	(0.016)
Log( $\mu$ ) x Interlinked	0.210***	(0.009)	0.193*	(0.068)
Log(A)	-0.0289	(0.333)	-0.0295	(0.106)
Log(A) x Interlinked	-0.269***	(0.000)	-0.269***	(0.001)
Maturity	-0.00421	(0.839)	-0.0310	(0.267)
Formal loan	-0.132*	(0.084)	-0.123***	(0.002)
Y2009	-0.0483	(0.247)		
Y2010	-0.0238	(0.510)	-0.0249	(0.502)
V	-0.106**	(0.030)	-0.0750*	(0.052)
Log( $\mu$ )	0.00641	(0.713)	0.00656	(0.661)
Boat	-0.0489	(0.293)	-0.0303	(0.566)
Motor	-0.0304	(0.266)	-0.0327	(0.302)
Literacy	0.00843	(0.767)	0.0114	(0.725)
Activity	0.0529	(0.146)	0.0339	(0.428)
Khartia	-0.0903*	(0.051)	-0.158***	(0.006)
Cell phone	-0.0422	(0.196)	-0.0444	(0.255)
Males 12-60	0.00675	(0.550)	0.0109	(0.387)
Training	0.0675	(0.107)	0.0796*	(0.090)
Attitude II	0.0147	(0.742)	0.0276	(0.602)
Attitude I	0.0369	(0.270)	0.0364	(0.351)
Central Sector	-0.144***	(0.009)	-0.160**	(0.028)
Northern Sector	-0.0944*	(0.061)	-0.114	(0.112)
Southern Sector	-0.0469	(0.357)	-0.0744	(0.313)
Other informal	-0.377	(0.329)		
Other informal x V	0.133**	(0.047)		
Other informal x log( $\mu$ )	0.00599	(0.795)		
Other informal x log(A)	0.0321	(0.357)		
Constant	0.870**	(0.012)	0.881***	(0.000)
Observations	319		250	
Adjusted $R^2$	0.263		0.273	

$p$ -values in parentheses; \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ; error terms clustered at household level.

Table A5. Comparison of the total impact of income volatility on the interest rates from (A) interlinked loans and (B) other informal loans

	Other informal loans	Interlinked loans
H0	coef[V]+coef[V x Informal]=0	coef[V]+coef[V x Interlinked]=0
p-value	0.5791	0.0680

Based on Wald tests of linear hypotheses.

Table A6. OLS regression results for interest rates, modified

Dependent variable:	(1)		(2)		(3)	
	without amount	without maturity	without maturity	without formal loan dummy		
	Coeff	(p-value)	Coeff	(p-value)	Coeff	(p-value)
Interest rate	-0.725	(0.260)	0.574	(0.367)	0.829	(0.217)
Interlinked Dummy	0.326**	(0.040)	0.286**	(0.023)	0.263**	(0.039)
V x Interlinked	0.0546	(0.348)	0.209***	(0.008)	0.210***	(0.009)
Log( $\mu$ ) x Interlinked	-0.00752	(0.695)	-0.167***	(0.000)	-0.0628***	(0.001)
Maturity	-0.173***	(0.000)	-0.0472	(0.267)	-0.00785	(0.852)
Formal loan	-0.0941*	(0.060)	-0.0254	(0.482)	-0.0247	(0.501)
Y2009	-0.0309	(0.465)	-0.0573	(0.104)	-0.0439	(0.262)
Y2010	-0.0669*	(0.063)	0.0105	(0.442)	0.0145	(0.306)
V	0.00958	(0.512)	-0.0486	(0.299)	-0.0499	(0.286)
Log( $\mu$ )	-0.0358	(0.457)	-0.0298	(0.270)	-0.0230	(0.431)
Boat	-0.0447	(0.132)	0.0102	(0.720)	0.00530	(0.859)
Motor	0.0109	(0.700)	0.0545	(0.129)	0.0462	(0.235)
Literacy	0.0896**	(0.016)	-0.0948**	(0.038)	-0.0945*	(0.054)
Activity	-0.139***	(0.005)	-0.0425	(0.194)	-0.0446	(0.178)
Khartia	-0.0467	(0.179)	0.00700	(0.529)	0.00768	(0.509)
Cell phone	0.00518	(0.675)	0.0684	(0.100)	0.0613	(0.144)
Males 12-60	0.0787*	(0.055)	0.0107	(0.811)	0.00475	(0.915)
Training	0.00721	(0.875)	0.0399	(0.207)	0.00483	(0.885)
Attitude II	0.0411	(0.231)	-0.145***	(0.009)	-0.172***	(0.002)
Attitude I	-0.125*	(0.075)	-0.100**	(0.046)	-0.144***	(0.003)
Central Sector	-0.110	(0.100)	-0.0493	(0.335)	-0.0900*	(0.067)
Northern Sector	-0.0544	(0.432)	-0.00885	(0.559)	-0.000129	(0.994)
Southern Sector			-0.289***	(0.000)	-0.308***	(0.000)
Log(A)			0.665***	(0.001)	0.529**	(0.014)
Log(A) x Interlinked	0.607***	(0.000)				
Constant	319		319		319	
Observations	319		0.268		0.220	
Adjusted $R^2$	0.149					

$p$ -values in parentheses; \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ; error terms clustered at household level.