

Analysis Appendix

for

**Trust Reciprocity and the Roles of Sex, Value Orientation
and Risk Attitudes in an Investment Game**

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1 August 2006

Figure 1 Data (4.1.1)

Risk Category	Proportion
Risk Averse	0.15384615
Risk Neutral	0.45054945
Risk Loving	0.3956044

Figure 2 Data (4.1.1)

Risk Category	Men %	Women %
Risk Averse	11	21
Risk Neutral	40	51
Risk Loving	49	28

Figures 4 and 5 Data (4.1.2)

Value Orientation in radians	Proportion of Total	Proportion of Men	Proportion of Women
-0.20 and less	0.076923	0.04	0.121951
-0.199 to 0	0.203297	0.13	0.292683
0.001 to 0.20	0.093407	0.05	0.146341
0.201 to 0.40	0.131868	0.13	0.134146
0.401 to 0.60	0.10989	0.16	0.04878
0.601 to 0.80	0.296703	0.40	0.170732
> 0.80	0.087912	0.09	0.085366

Note: For the data in Figures 1, 2, 4 and 5, the actual numbers of men and women in each category can be calculated knowing that there were 100 men and 82 women in the experiment.

Figure 6 Data (4.1.3)

Means, Standard Deviations and Frequencies of voa

gender	RiskDumm			Total
	Risk Aver	Risk Lovi	Risk Neut	
Female	.01670444	.44267132	.2108717	.23563448
	.40614708	.37991516	.35328259	.39687466
	17	23	42	82
Male	.40571313	.55824838	.39372356	.47565958
	.25073175	.3447105	.34624657	.34325305
	11	49	40	100
Total	.16952928	.52132793	.30006773	.3675164
	.39807893	.35777261	.35965928	.38635869
	28	72	82	182

This is the analysis of variance reported in section 4.1.3

anova voa gender RiskDumm RiskDumm*gender

Source	Partial SS	df	MS	F	Prob > F
Model	5.07873847	5	1.01574769	8.15	0.0000
gender	1.80075847	1	1.80075847	14.45	0.0002
RiskDumm	2.09948942	2	1.04974471	8.42	0.0003
RiskDumm*gender	.352237912	2	.176118956	1.41	0.2462
Residual	21.9396814	176	.12465728		
Total	27.0184198	181	.149273038		

This is the regression from which hypothesis tests are developed.

regress

Source	SS	df	MS	Number of obs =	182
Model	5.07873847	5	1.01574769	F(5, 176) =	8.15
Residual	21.9396814	176	.12465728	Prob > F =	0.0000
Total	27.0184198	181	.149273038	R-squared =	0.1880
				Adj R-squared =	0.1649
				Root MSE =	.35307

voa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_cons	.3937236	.055825	7.05	0.000	.283551 .5038961
gender					
1	-.1828519	.078003	-2.34	0.020	-.3367934 -.0289103
2	(dropped)				
RiskDumm					
1	.0119896	.1202036	0.10	0.921	-.2252364 .2492156
2	.1645248	.075236	2.19	0.030	.016044 .3130057
3	(dropped)				
RiskDumm*gender					
1 1	-.2061568	.1573204	-1.31	0.192	-.5166341 .1043205
1 2	(dropped)				
2 1	.0672748	.1185258	0.57	0.571	-.16664 .3011896
2 2	(dropped)				
3 1	(dropped)				
3 2	(dropped)				

This is the test of the significance of the difference between the mean value orientation of men and women who are risk averse. We reject the null that there is no difference in favor of the alternative that there is a difference (p = 0.005)

test _b[gender[1]] + _b[RiskDumm[1]*gender[1]]=0

(1) gender[1] + RiskDumm[1]*gender[1] = 0.0

F(1, 176) = 8.11
 Prob > F = 0.0049

This is the test of the significance of the difference between the mean value orientation of men and women who are risk lovers. We maintain the null that there is no difference (p = 0.197)

. test _b[gender[1]] + _b[RiskDumm[2]*gender[1]]=0

(1) gender[1] + RiskDumm[2]*gender[1] = 0.0

F(1, 176) = 1.68
 Prob > F = 0.1970

The test of the significance of the difference between the mean value orientation of men and women who are risk neutral is provided by the statistics in the regression table above for the variable gender[1]. We reject the null that there is no difference in favor of the alternative that there is a difference (0.020)

Analysis of Variance of simple model using only gender and Order (5.1.1)

anova SenderGi Order gender Order*gender

Number of obs = 182 R-squared = 0.0662
 Root MSE = 29.5748 Adj R-squared = 0.0505

Source	Partial SS	df	MS	F	Prob > F
Model	11041.8112	3	3680.60374	4.21	0.0066
Order	301.038874	1	301.038874	0.34	0.5582
gender	7658.34928	1	7658.34928	8.76	0.0035
Order*gender	2865.6103	1	2865.6103	3.28	0.0720
Residual	155690.898	178	874.667964		
Total	166732.709	181	921.175187		

Tests of Models of Reciprocity excluding Value Orientations: The current literature (5.1.2)

Simple Reciprocity

anova SimpleR0 Order gender Trust_In Order*gender Order*Trust_In gender*Trust_In Order*gender*Trust_In, continuous(Trust_In)

Number of obs = 182 R-squared = 0.0328
 Root MSE = .325331 Adj R-squared = -0.0062

Source	Partial SS	df	MS	F	Prob > F
Model	.623769984	7	.089109998	0.84	0.5540
Order	.282034677	1	.282034677	2.66	0.1044
gender	.004949942	1	.004949942	0.05	0.8290
Trust_In	.081637776	1	.081637776	0.77	0.3810
Order*gender	.004032721	1	.004032721	0.04	0.8455
Order*Trust_In	.085160233	1	.085160233	0.80	0.3710
gender*Trust_In	.01108162	1	.01108162	0.10	0.7466
Order*gender*Trust_In	.022394545	1	.022394545	0.21	0.6461
Residual	18.4161653	174	.105840031		
Total	19.0399353	181	.105193013		

Note: This model does not account for a significant amount of the variation in the reciprocity measures.

The following is the only Reciprocity Model which accounts for a significant amount of the variation in the Reciprocity variable

Reciprocity

```
anova NaiveRec Order gender Trust_In Order*gender Order*Trust_In gender*Trust_In
Order*gender*Trust_In, continuous(Trust_In)
```

Source	Partial SS	df	MS	F	Prob > F
Model	1.09803653	7	.156862361	3.27	0.0028
Order	.031997821	1	.031997821	0.67	0.4155
gender	.003051357	1	.003051357	0.06	0.8013
Trust_In	.876724416	1	.876724416	18.26	0.0000
Order*gender	.012314851	1	.012314851	0.26	0.6132
Order*Trust_In	.001271111	1	.001271111	0.03	0.8710
gender*Trust_In	.000223373	1	.000223373	0.00	0.9457
Order*gender*Trust_In	.001035669	1	.001035669	0.02	0.8834
Residual	8.35631231	174	.048024783		
Total	9.45434883	181	.052233971		

Test for significance of gender, order and all of their interactions with each other and with other variables

```
test Order gender Order*gender Order*Trust_In gender*Trust_In Order*gender*Trust_In
```

Source	Partial SS	df	MS	F	Prob > F
Order gender Order*					
gender Order*Trust_In					
gender*Trust_In Order*					
gender*Trust_In	.157972537	6	.026328756	0.55	0.7709
Residual	8.35631231	174	.048024783		

Note: We can retain the null that sex and order do not jointly account for a significant amount of the variation in this reciprocity measure.

Analysis of Variance of Restricted Model of Reciprocity: Returned/3xSent+Rec Endowment, without value orientations

```
anova NaiveRec Trust_In, continuous(Trust_In)
```

Source	Partial SS	df	MS	F	Prob > F
Model	.940063991	1	.940063991	19.87	0.0000
Trust_In	.940063991	1	.940063991	19.87	0.0000
Residual	8.51428484	180	.047301582		
Total	9.45434883	181	.052233971		

Regression based on Restricted Model of Reciprocity: Returned/3xSent+Rec Endowment, without value orientations

regress

Source	SS	df	MS	Number of obs =	182
Model	.940063991	1	.940063991	F(1, 180) =	19.87
Residual	8.51428484	180	.047301582	Prob > F =	0.0000
Total	9.45434883	181	.052233971	R-squared =	0.0994
				Adj R-squared =	0.0944
				Root MSE =	.21749

NaiveRec	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_cons	.1229797	.0341708	3.60	0.000	.0555527 .1904066
Trust_In	.2374479	.0532632	4.46	0.000	.1323473 .3425485

Sophisticated Reciprocity

anova SophistR Order gender Trust_In Order*gender Order*Trust_In gender*Trust_In Order*gender*Trust_In, continuous(Trust_In)

Source	Partial SS	df	MS	F	Prob > F
Model	.230147945	7	.032878278	0.77	0.6141
Order	.019491821	1	.019491821	0.46	0.5004
gender	.012070986	1	.012070986	0.28	0.5959
Trust_In	.106141308	1	.106141308	2.48	0.1169
Order*gender	.010864529	1	.010864529	0.25	0.6148
Order*Trust_In	.000026646	1	.000026646	0.00	0.9801
gender*Trust_In	.014522474	1	.014522474	0.34	0.5608
Order*gender*Trust_In	.020515659	1	.020515659	0.48	0.4894
Residual	7.43938257	174	.042755072		
Total	7.66953051	181	.042373097		

Note: This model does not account for a significant amount of the variation in the reciprocity measures.

Analysis of Variance of Full Model of Trust (5.2.1)

anova SenderGi Order gender voa RiskDumm Order*gender Order*voa Order*RiskDumm gender*voa
gender*RiskDumm voa*RiskDumm Order*gender*voa Order*gender*RiskDumm Order*voa*RiskDumm
gender*voa*RiskDumm Order*gender*voa*RiskDumm, continuous (voa)

Number of obs = 182 R-squared = 0.2726
Root MSE = 27.7066 Adj R-squared = 0.1667

Source	Partial SS	df	MS	F	Prob > F
Model	45443.1667	23	1975.78986	2.57	0.0003
Order	64.973865	1	64.973865	0.08	0.7715
gender	1.96913291	1	1.96913291	0.00	0.9597
voa	7989.01095	1	7989.01095	10.41	0.0015
RiskDumm	526.18227	2	263.091135	0.34	0.7104
Order*gender	1289.13144	1	1289.13144	1.68	0.1969
Order*voa	578.728783	1	578.728783	0.75	0.3866
Order*RiskDumm	1468.17323	2	734.086613	0.96	0.3865
gender*voa	1274.07851	1	1274.07851	1.66	0.1995
gender*RiskDumm	1224.76331	2	612.381655	0.80	0.4522
voa*RiskDumm	2584.52272	2	1292.26136	1.68	0.1891
Order*gender*voa	93.318809	1	93.318809	0.12	0.7278
Order*gender*RiskDumm	600.657838	2	300.328919	0.39	0.6769
Order*voa*RiskDumm	176.780981	2	88.3904905	0.12	0.8913
gender*voa*RiskDumm	3246.73572	2	1623.36786	2.11	0.1241
Order*gender*voa* RiskDumm	1383.95993	2	691.979963	0.90	0.4081
Residual	121289.542	158	767.65533		
Total	166732.709	181	921.175187		

Test for significance of gender, Order, RiskDumm and their interactions with other variables

test Order gender RiskDumm Order*gender Order*voa Order*RiskDumm gender*voa gender*RiskDumm
voa*RiskDumm Order*gender*voa Order*gender*RiskDumm Order*voa*RiskDumm gender*voa*RiskDumm
Order*gender*voa*RiskDumm

Source	Partial SS	df	MS	F	Prob > F
Order gender RiskDumm Order*gender Order*voa Order*RiskDumm gender* etc.	26413.981	22	1200.6355	1.56	0.0612
Residual	121289.542	158	767.65533		

Note: Cannot retain null that Order, gender and Risk Attitudes do not account for a significant amount of the variation in trust.

Test for significance of gender, Order and their interactions with other variables

test Order gender Order*gender Order*voa Order*RiskDumm gender*voa gender*RiskDumm
Order*gender*voa Order*gender*RiskDumm Order*voa*RiskDumm gender*voa*RiskDumm
Order*gender*voa*RiskDumm

Source	Partial SS	df	MS	F	Prob > F
Order gender Order* gender Order*voa Order* RiskDumm gender*voa etc.	14043.3173	18	780.184294	1.02	0.4445
Residual	121289.542	158	767.65533		

Note: Can retain the null that Order and gender do not account for a significant amount of the variation in trust.

Analysis of Variance of Restricted Model of Trust with Value Orientation and Risk Attitude

anova SenderGi voa RiskDumm voa*RiskDumm, continuous(voa)

Source	Partial SS	df	MS	F	Prob > F
Model	31399.8494	5	6279.96987	8.17	0.0000
voa	8656.9171	1	8656.9171	11.26	0.0010
RiskDumm	684.016955	2	342.008478	0.44	0.6417
voa*RiskDumm	3737.47697	2	1868.73849	2.43	0.0910
Residual	135332.859	176	768.936701		
Total	166732.709	181	921.175187		

This test confirms that Risk Attitudes account for a significant amount of the variation in trust.

test RiskDumm voa*RiskDumm

Source	Partial SS	df	MS	F	Prob > F
RiskDumm voa*RiskDumm	12370.6637	4	3092.66592	4.02	0.0038
Residual	135332.859	176	768.936701		

The adjusted R-squared falls by more than 30 percent if risk attitudes are dropped from the model.

anova SenderGi voa, continuous(voa)

Source	Partial SS	df	MS	F	Prob > F
Model	19029.1857	1	19029.1857	23.19	0.0000
voa	19029.1857	1	19029.1857	23.19	0.0000
Residual	147703.523	180	820.575128		
Total	166732.709	181	921.175187		

Regression based on Restricted Model of Trust with Value Orientation and Risk Attitude (5.2.1)

regress

Source	SS	df	MS	Number of obs =	182
Model	31399.8494	5	6279.96987	F(5, 176) =	8.17
Residual	135332.859	176	768.936701	Prob > F =	0.0000
				R-squared =	0.1883
				Adj R-squared =	0.1653
Total	166732.709	181	921.175187	Root MSE =	27.73

SenderGi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_cons	44.26774	3.998143	11.07	0.000	36.37726 52.15821
voa	11.74717	8.56666	1.37	0.172	-5.159428 28.65377
RiskDumm					
1	6.156185	6.97225	0.88	0.378	-7.60379 19.91616
2	4.233926	7.046998	0.60	0.549	-9.673567 18.14142
3	(dropped)				
voa*RiskDumm					
1	.4989682	15.90925	0.03	0.975	-30.89849 31.89643
2	25.92054	12.56968	2.06	0.041	1.113832 50.72724
3	(dropped)				

Analysis of Variance of Full Model of Reciprocity: Returned/3xSent with max = 1 and with Value Orientation (5.2.2)

Note: This model does not account for a significant amount of the variation in the dependent variable

anova SimpleR0 Order gender voa Trust_In Order*gender Order*voa Order*Trust_In gender*voa gender*Trust_In voa*Trust_In Order*gender*voa Order*gender*Trust_In gender*voa*Trust_In Order*gender*voa*Trust_In, continuous(voa Trust_In)

Number of obs = 182 R-squared = 0.0862
 Root MSE = .323744 Adj R-squared = 0.0036

Source	Partial SS	df	MS	F	Prob > F
Model	1.64147235	15	.10943149	1.04	0.4131
Order	.144603986	1	.144603986	1.38	0.2418
gender	.008521593	1	.008521593	0.08	0.7759
voa	.170295973	1	.170295973	1.62	0.2042
Trust_In	.067797879	1	.067797879	0.65	0.4224
Order*gender	.038444543	1	.038444543	0.37	0.5456
Order*voa	.000480704	1	.000480704	0.00	0.9461
Order*Trust_In	.10051378	1	.10051378	0.96	0.3289
gender*voa	.020465353	1	.020465353	0.20	0.6591
gender*Trust_In	.022013067	1	.022013067	0.21	0.6473
voa*Trust_In	.466597333	1	.466597333	4.45	0.0364
Order*gender*voa	.074407264	1	.074407264	0.71	0.4007
Order*gender*Trust_In	.01077773	1	.01077773	0.10	0.7489
gender*voa*Trust_In	.029013197	1	.029013197	0.28	0.5995
Order*gender*voa*Trust_In	.040203348	2	.020101674	0.19	0.8257
Residual	17.398463	166	.104810018		
Total	19.0399353	181	.105193013		

Analysis of Variance of Full Model of Reciprocity: Senders Income/Total Surplus with Value Orientation(5.2.2)

Note: This model does not account for a significant amount of the variation in the dependent variable

anova SophistR Order gender voa Trust_In Order*gender Order*voa Order*Trust_In gender*voa gender*Trust_In voa*Trust_In Order*gender*voa Order*gender*Trust_In gender*voa*Trust_In Order*gender*voa*Trust_In, continuous(voa Trust_In)

Number of obs = 182 R-squared = 0.0981
 Root MSE = .204133 Adj R-squared = 0.0166

Source	Partial SS	df	MS	F	Prob > F
Model	.75223081	15	.050148721	1.20	0.2735
Order	.007892093	1	.007892093	0.19	0.6640
gender	.004607563	1	.004607563	0.11	0.7399
voa	.027202028	1	.027202028	0.65	0.4203
Trust_In	.243533703	1	.243533703	5.84	0.0167
Order*gender	.056000263	1	.056000263	1.34	0.2480
Order*voa	.000810035	1	.000810035	0.02	0.8893
Order*Trust_In	.002923891	1	.002923891	0.07	0.7914
gender*voa	.014040558	1	.014040558	0.34	0.5624
gender*Trust_In	.008405601	1	.008405601	0.20	0.6539
voa*Trust_In	.161977479	1	.161977479	3.89	0.0503
Order*gender*voa	.071019873	1	.071019873	1.70	0.1935
Order*gender*Trust_In	.032465679	1	.032465679	0.78	0.3787
gender*voa*Trust_In	.024533646	1	.024533646	0.59	0.4440
Order*gender*voa*Trust_In	.048278115	2	.024139057	0.58	0.5614
Residual	6.9172997	166	.04167048		
Total	7.66953051	181	.042373097		

Analysis of Variance of Full Model of Reciprocity: Returned/3xSent+Rec Endowment with Value Orientation (5.2.2)

anova NaiveRec Order gender voa Trust_In Order*gender Order*voa Order*Trust_In gender*voa gender*Trust_In voa*Trust_In Order*gender*voa Order*gender*Trust_In gender*voa*Trust_In Order*gender*voa*Trust_In, continuous(voa Trust_In)

Number of obs = 182 R-squared = 0.1688
 Root MSE = .217572 Adj R-squared = 0.0937

Source	Partial SS	df	MS	F	Prob > F
Model	1.59628588	15	.106419058	2.25	0.0067
Order	.035159195	1	.035159195	0.74	0.3900
gender	.00056105	1	.00056105	0.01	0.9134
voa	.074664163	1	.074664163	1.58	0.2109
Trust_In	.109081466	1	.109081466	2.30	0.1309
Order*gender	.001595743	1	.001595743	0.03	0.8545
Order*voa	.008039014	1	.008039014	0.17	0.6808
Order*Trust_In	.019350244	1	.019350244	0.41	0.5235
gender*voa	.008661525	1	.008661525	0.18	0.6694
gender*Trust_In	.00039055	1	.00039055	0.01	0.9277
voa*Trust_In	.233060039	1	.233060039	4.92	0.0279
Order*gender*voa	.012681581	1	.012681581	0.27	0.6054
Order*gender*Trust_In	.001729619	1	.001729619	0.04	0.8486
gender*voa*Trust_In	.020381208	1	.020381208	0.43	0.5126
Order*gender*voa*Trust_In	.028709057	2	.014354529	0.30	0.7388
Residual	7.85806296	166	.047337729		
Total	9.45434883	181	.052233971		

Test for significance of gender, order and all of their interactions with each other and with other variables

```
test gender Order Order*gender Order*voa Order*Trust_In gender*voa gender*Trust_In
Order*gender*voa Order*gender*Trust_In gender*voa*Trust_In Order*gender*voa*Trust_In
```

Source	Partial SS	df	MS	F	Prob > F
gender Order Order*					
gender Order*voa Order*					
Trust_In gender*voa					
etc.	.298589225	12	.024882435	0.53	0.8960
Residual	7.85806296	166	.047337729		

Note: We can retain the null that order and gender to not account for a significant amount of the variation in Reciprocity.

Analysis of Variance of Restricted Model of Reciprocity: Returned/3xSent+Rec Endowment, including value orientations and the trust index

```
anova NaiveRec voa Trust_In voa*Trust_In, continuous (voa Trust_In)
```

Source	Partial SS	df	MS	F	Prob > F
Model	1.29769665	3	.43256555	9.44	0.0000
voa	.096430005	1	.096430005	2.10	0.1486
Trust_In	.112187388	1	.112187388	2.45	0.1194
voa*Trust_In	.265277721	1	.265277721	5.79	0.0171
Residual	8.15665218	178	.045823889		
Total	9.45434883	181	.052233971		

Regression based on Restricted Model of Reciprocity: Returned/3xSent+Rec Endowment

```
regress
```

Source	SS	df	MS	Number of obs =	182
Model	1.29769665	3	.43256555	F(3, 178) =	9.44
Residual	8.15665218	178	.045823889	Prob > F =	0.0000
Total	9.45434883	181	.052233971	R-squared =	0.1373
				Adj R-squared =	0.1227
				Root MSE =	.21407

NaiveRec	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_cons	.1689198	.0444427	3.80	0.000	.0812173 .2566223
voa	-.1271468	.0876486	-1.45	0.149	-.3001109 .0458174
Trust_In	.1124511	.0718684	1.56	0.119	-.0293725 .2542748
voa*Trust_In	.3258712	.1354383	2.41	0.017	.0585998 .5931427

Test of overall significance of Value Orientation in the Restricted Model

Note: Value Orientation accounts for a significant amount of the variation in the dependent variable

```
test voa voa*Trust_In
```

Source	Partial SS	df	MS	F	Prob > F
voa voa*Trust_In	.35763266	2	.17881633	3.90	0.0219
Residual	8.15665218	178	.045823889		

