Climatic Roots of Loss Aversion

Oded Galor and Viacheslav Savitskiy

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  - The origins of variation in the prevalence of loss aversion across regions, nations, and ethnic groups
  - The implications of the deep determinants of loss aversion for observed human behavior and economic outcomes

Related Literature

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    - Inherent asymmetry $\rightarrow$ larger weight assigned to losses vs. gains

Testable Predictions

Individuals & ethnic groups originated in regions characterized by:

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- Higher **spatial correlation** of climatic shocks
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  - Risky mode (vulnerable to climatic volatility)

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  - Risky mode (Sensitive to climatic volatility)

$$y_{it}^{r} = \begin{cases} y^{h} > \bar{y} & \text{with probability} \quad p \\ y^{l} < \tilde{c} & \text{with probability} \quad 1-p \end{cases}$$

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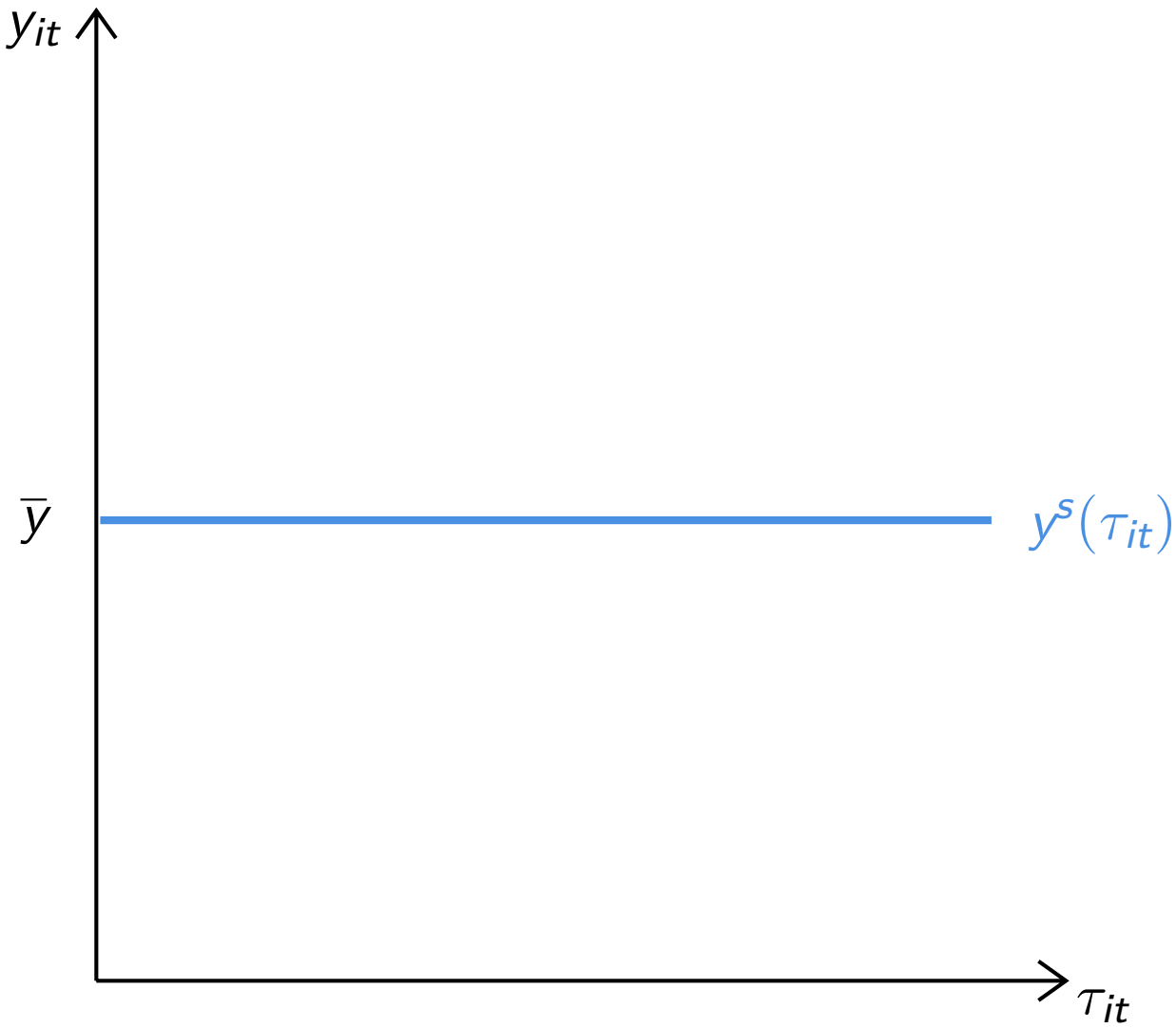
- A fraction μ of individuals $\rightarrow$ identical realization (aggregate shock)

Climatic Volatility and Output



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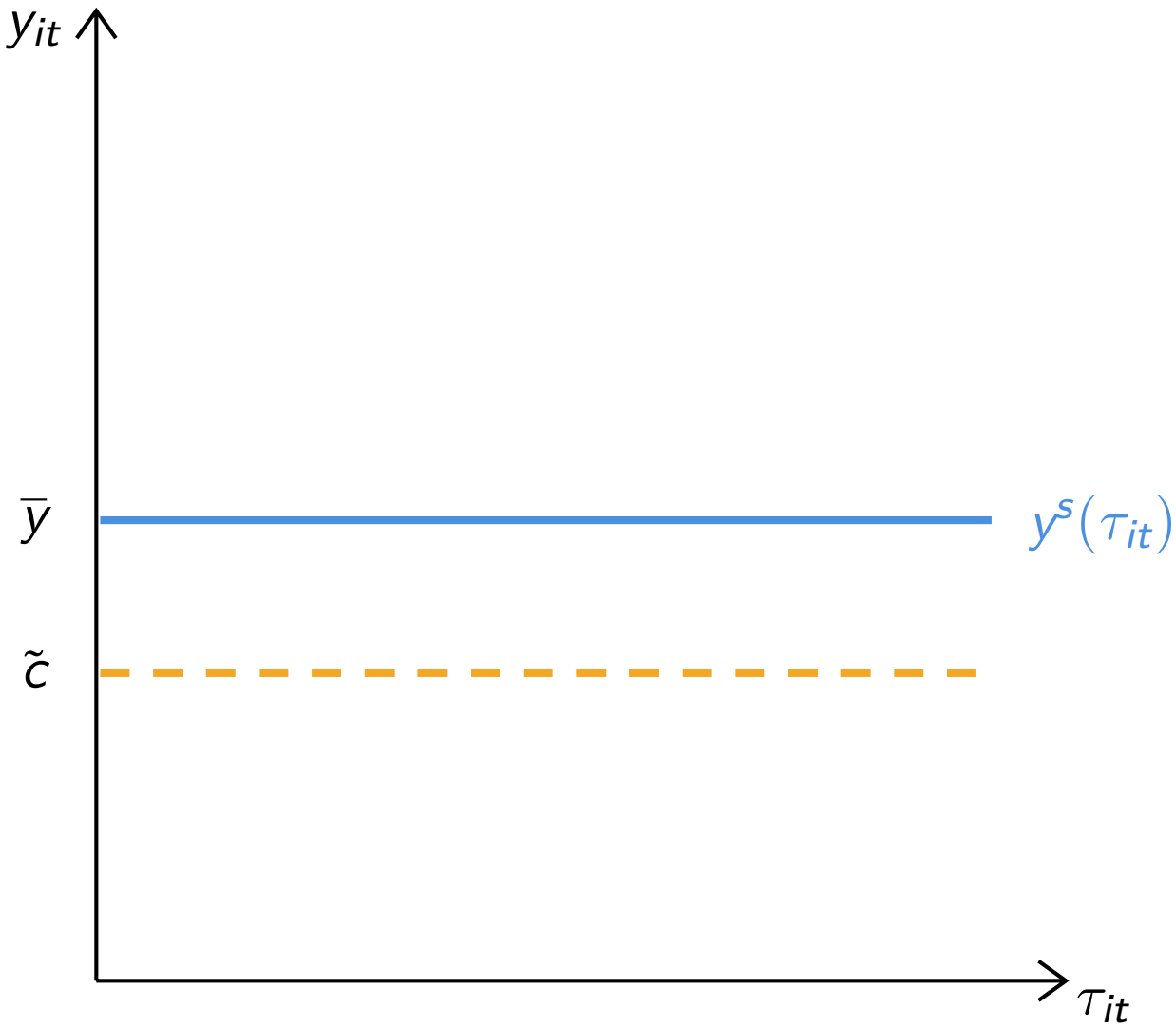

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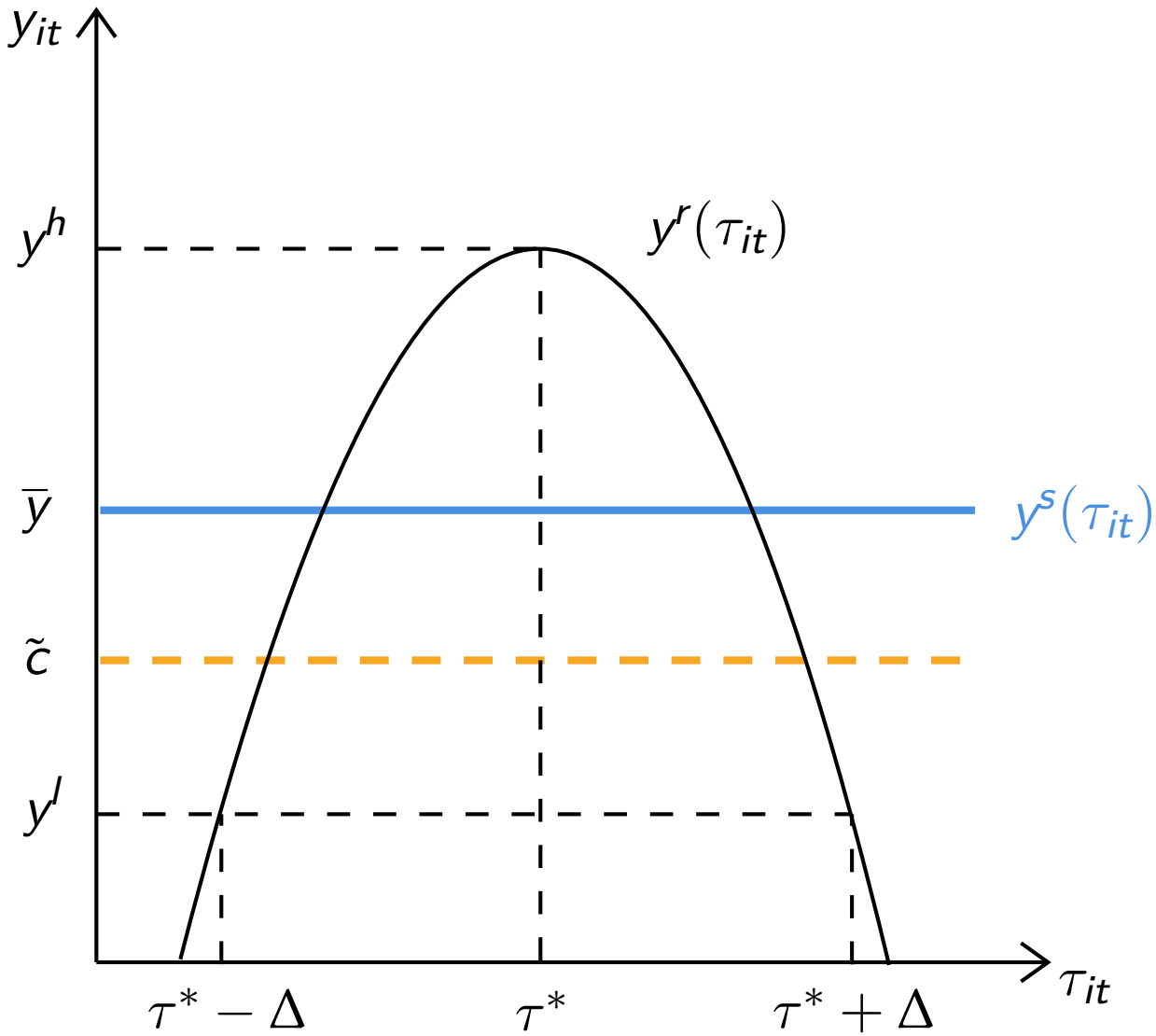

Preferences

$$u_i(c_{it}, n_{it}) = \begin{cases} (1-\gamma)\left[\ln(c_{it}) - \ln \tilde{c}\right] + \gamma \ln(n_{it} + \epsilon) & \text{if } c_{it} \geq \tilde{c} \\ \frac{1}{\theta_i}(1-\gamma)\left[\ln(c_{it}) - \ln \tilde{c}\right] + \gamma \ln(n_{it} + \epsilon) & \text{if } c_{it} < \tilde{c} \end{cases}$$

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  - $\theta_i \to 0$ Extreme Loss Aversion.

CRRA Utility

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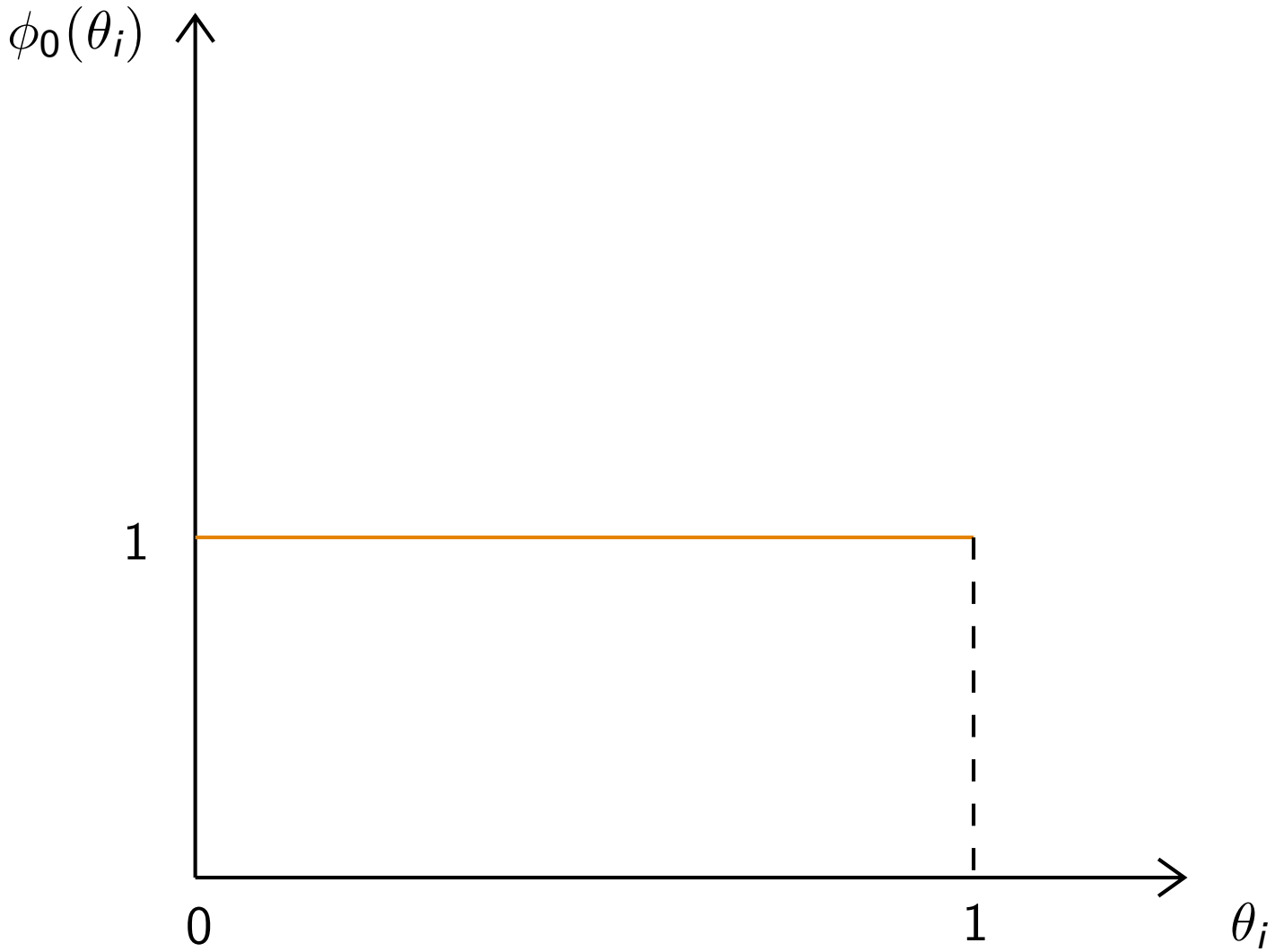
  - Individuals survive below subsistence but are unable to reproduce

Sorting into Safe & Risky Production Modes

Initial distribution of the degree of loss neutrality: $\theta_i \sim U(0,1)$



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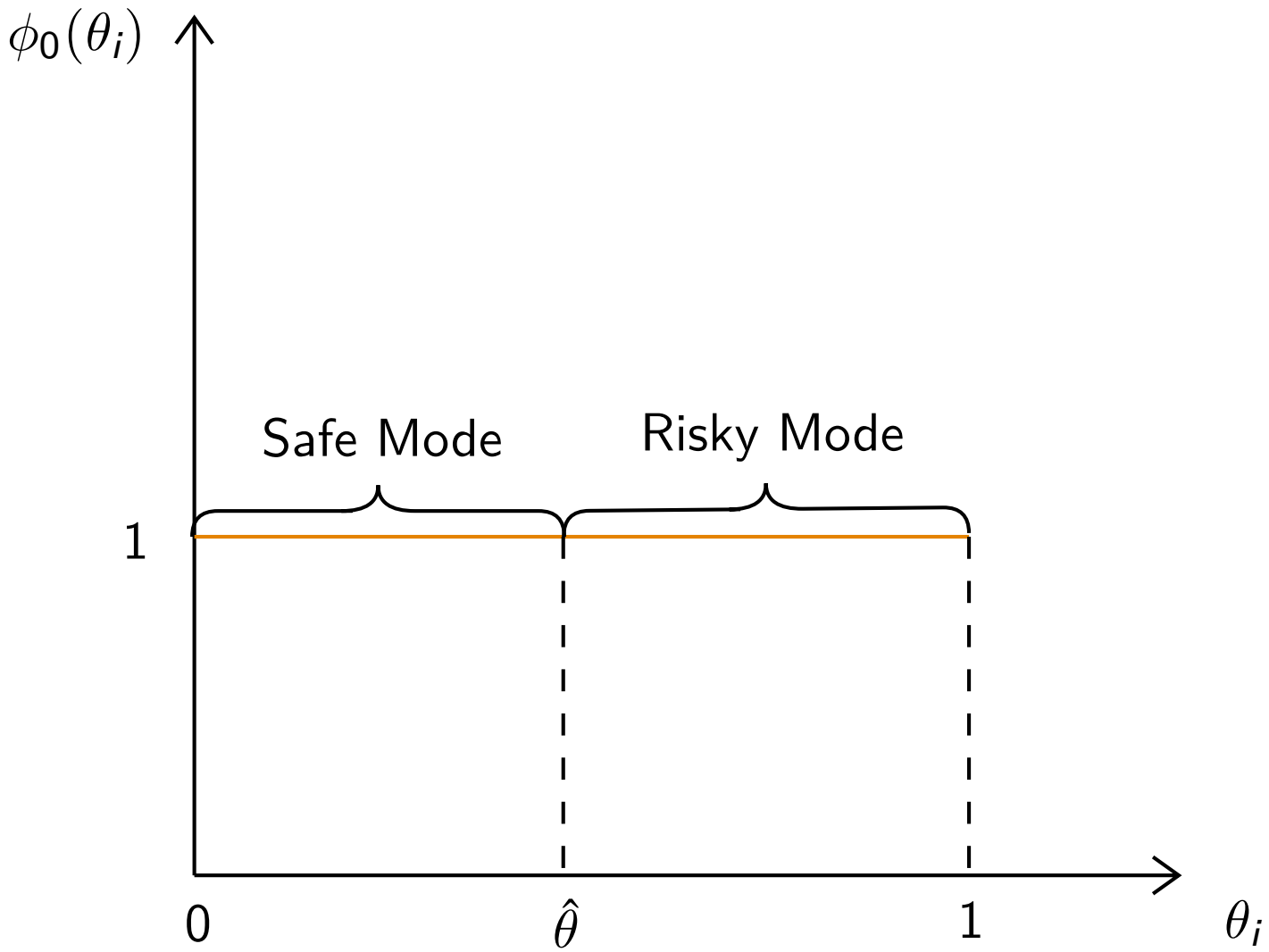
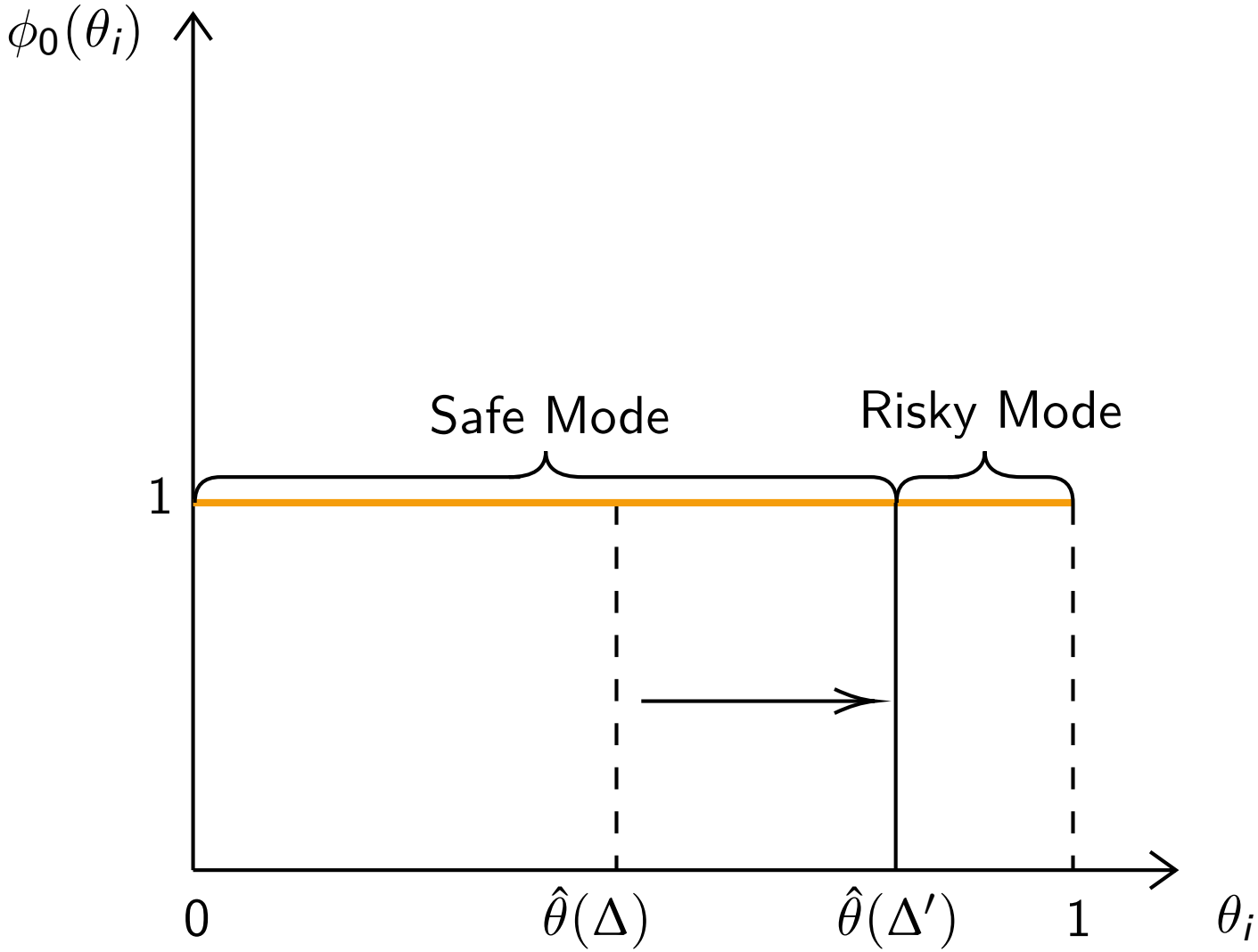


The Effect of a Rise in Volatility on Sorting



Optimization

Reproductive Success

$$n_{it} = \begin{cases} n(y^s) = 1 & \text{if} \quad \theta_i \leq \hat{\theta} \\ 0 & \text{if} \quad \theta_i > \hat{\theta} \ \text{ and } \ y^r_{it} = y^l \\ n(y^h) > 1 & \text{if} \quad \theta_i > \hat{\theta} \ \text{ and } \ y^r_{it} = y^h \end{cases}$$

The Evolution of the Composition of Loss Aversion

- Population growth of the Loss Averse types (safe mode):

$$g_n^{LA} = 0$$

- Asymptotic population growth of the Loss Neutral types (risky mode):

$$g_n^{LN}(\mu) = \begin{cases} < 0 & \text{if} \quad \mu = 1 \\ > 0 & \text{if} \quad \mu = 0 \end{cases}$$

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- $\rightarrow$ There exists $\hat{\mu} \in (0;1)$, such that

  - $\mu < \hat{\mu} \rightarrow g_n^{LN}(\mu) > g_n^{LA} = 0 \rightarrow$ Loss Neutral types dominate
  - $\mu > \hat{\mu} \rightarrow g_n^{LN}(\mu) < g_n^{LA} = 0 \rightarrow$ Loss Averse types dominate

The Adverse Effect of Volatility on Loss Aversion

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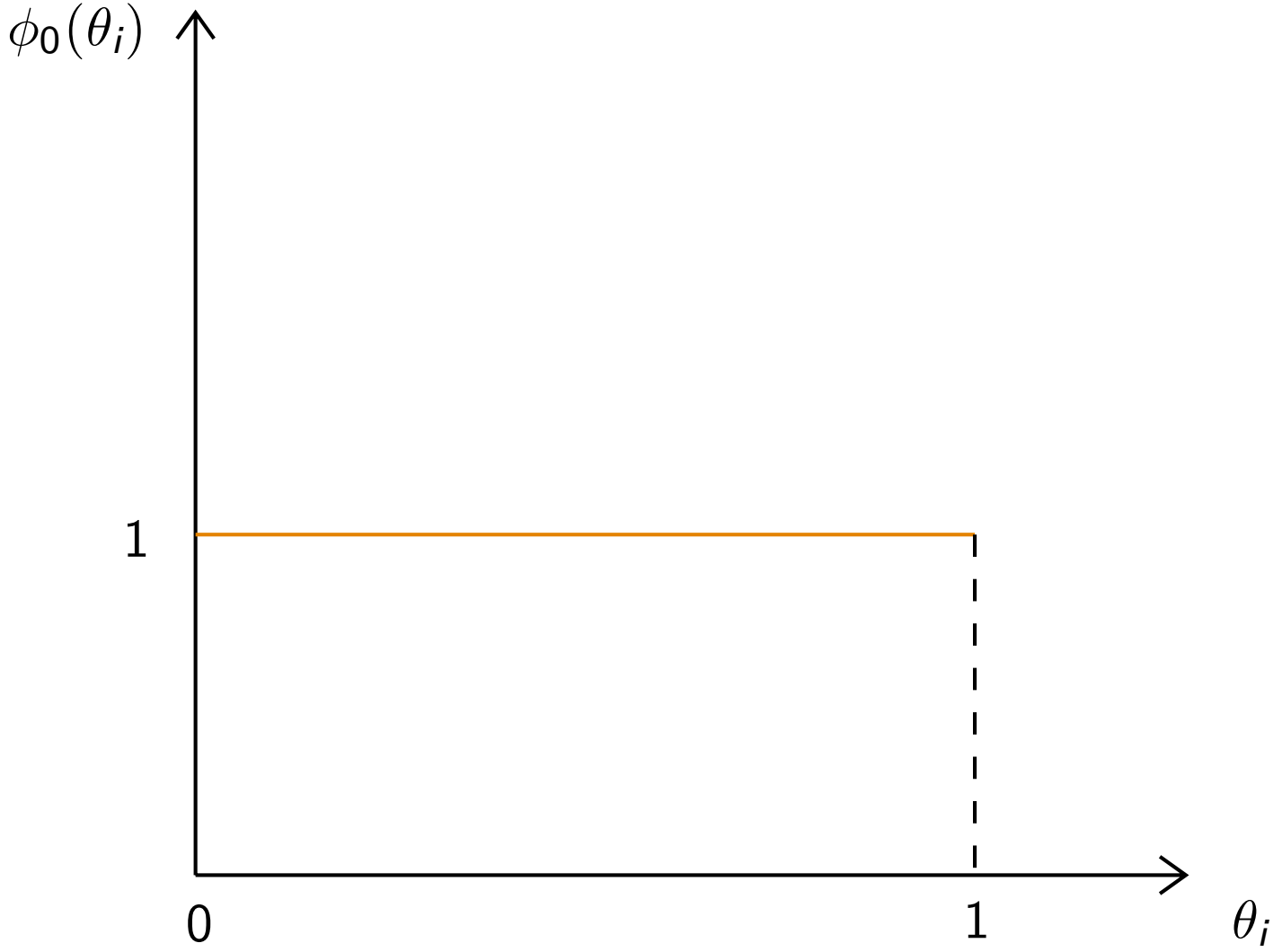

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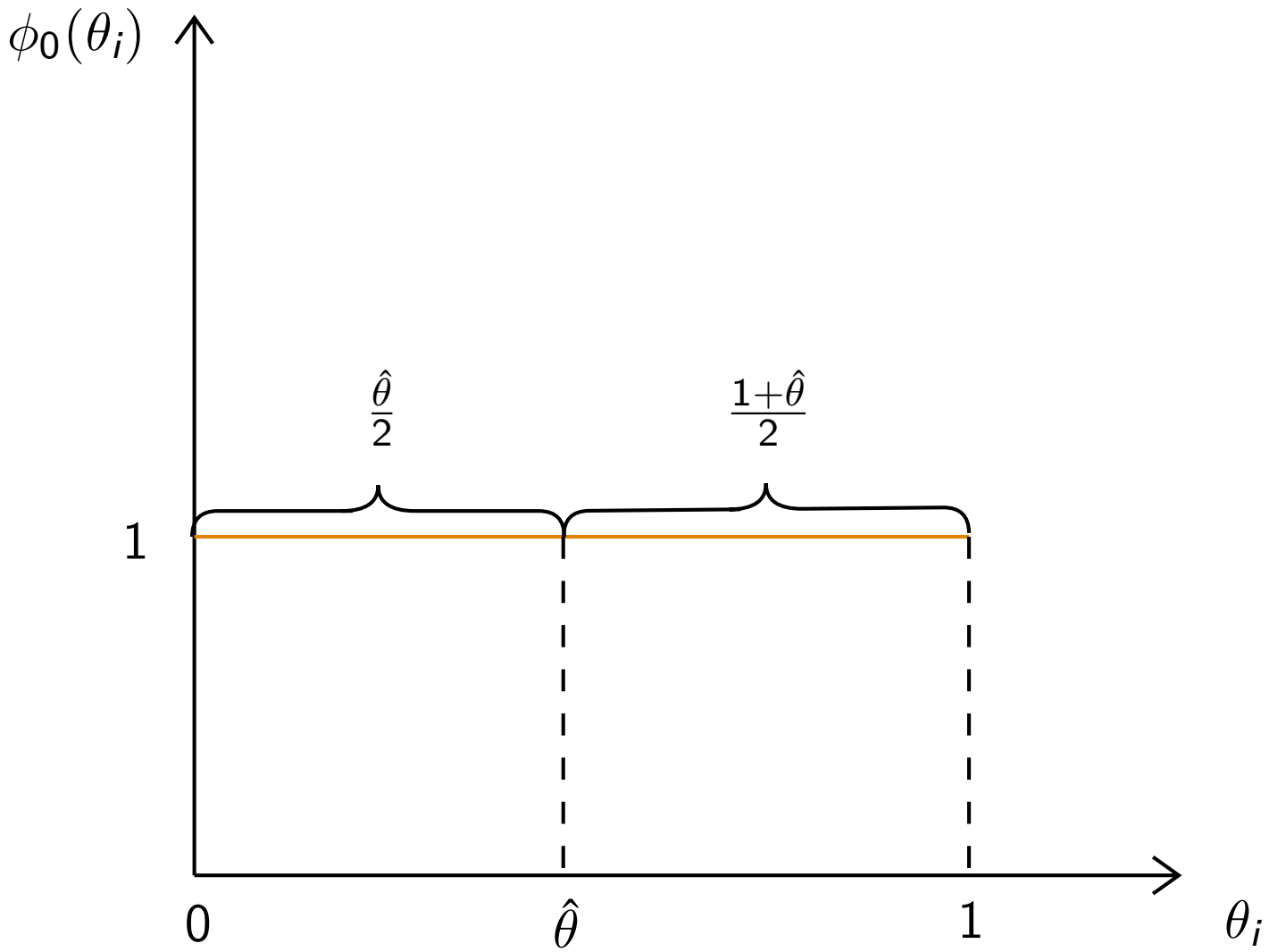
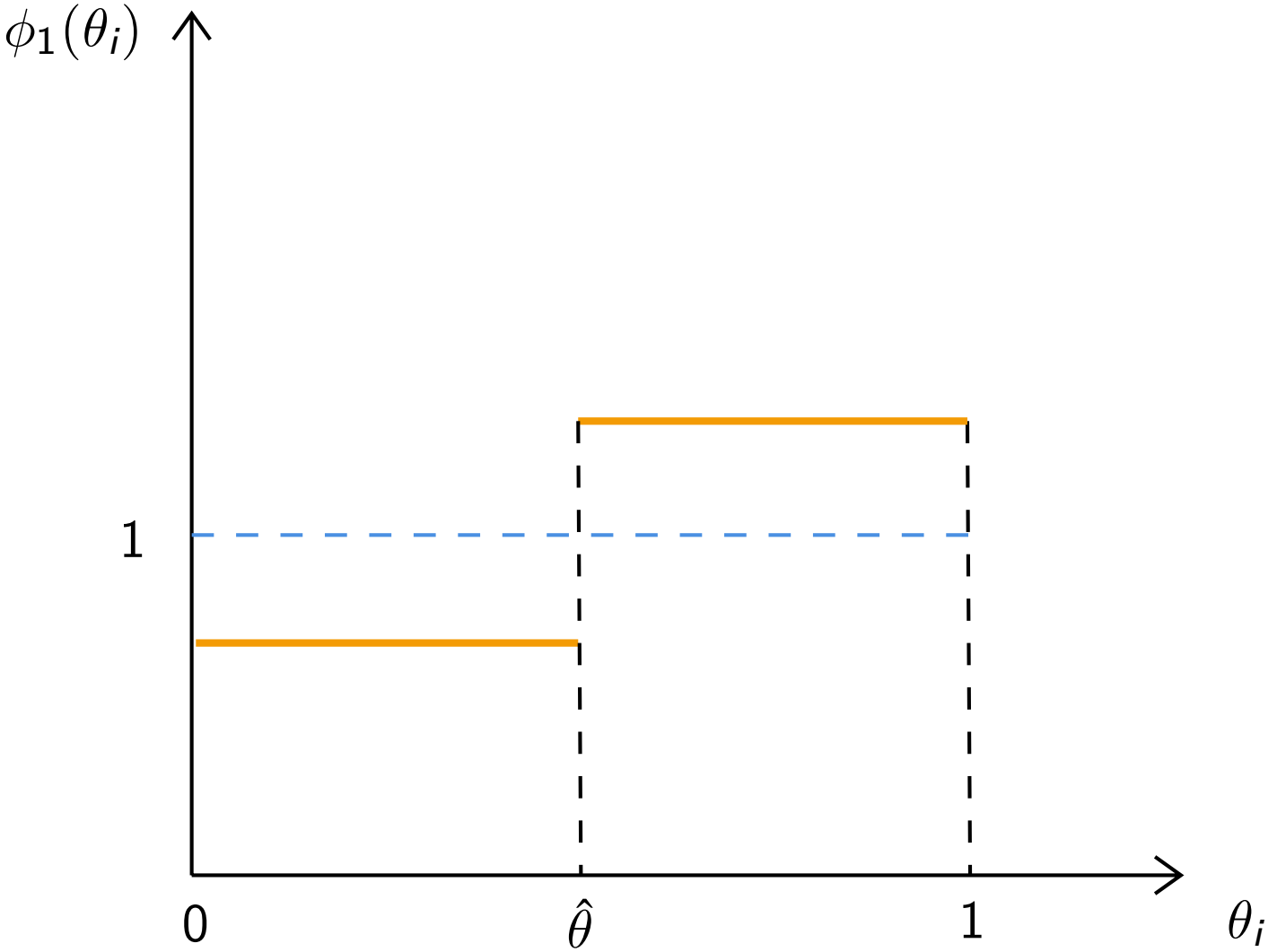


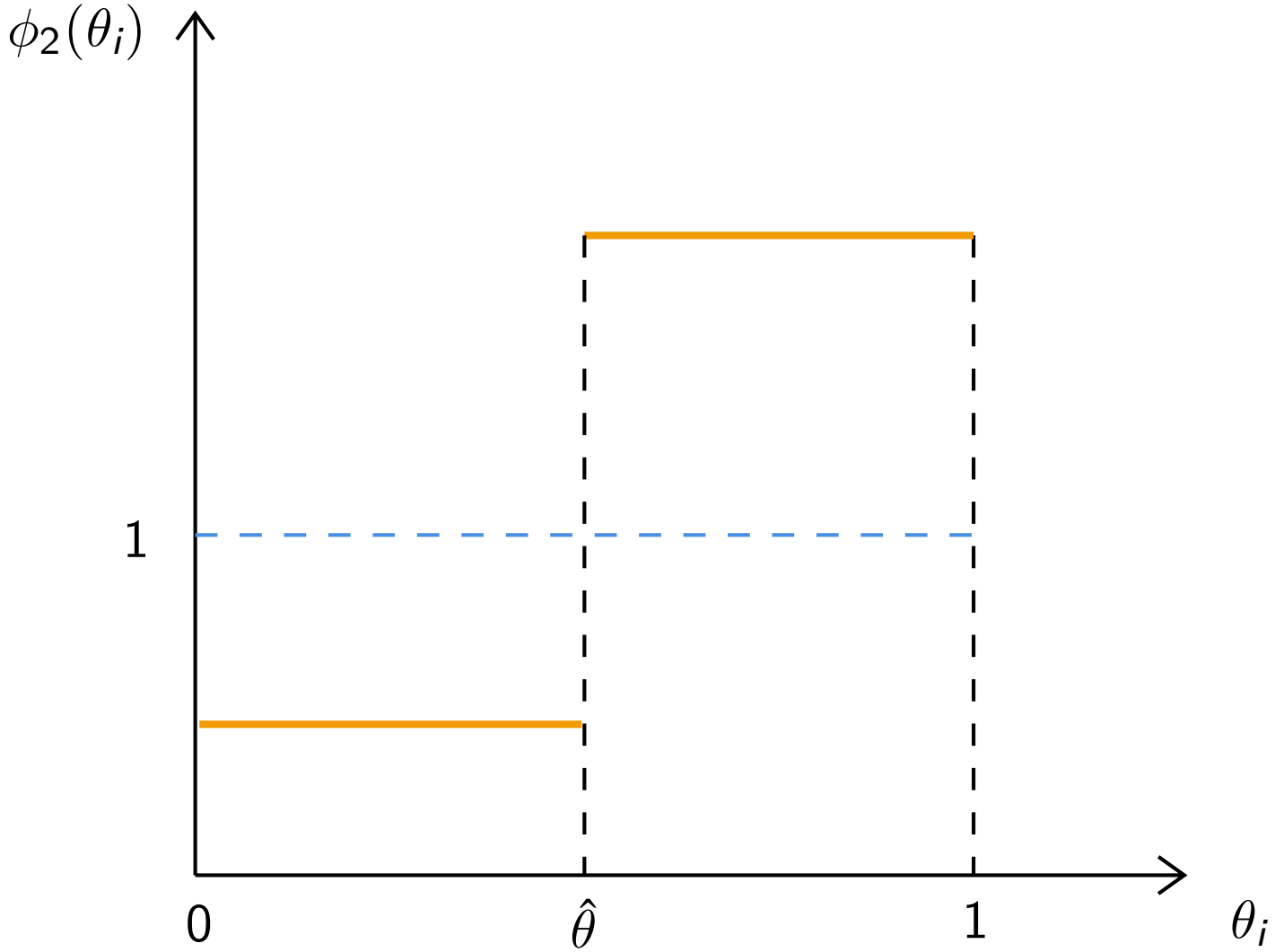
Uncorrelated Shocks and Reproductive Success

Correlation $\mu < \hat{\mu} \Rightarrow$ **Loss Neutral** types have higher reproductive success



Uncorrelated Shocks and Reproductive Success

Share of Loss Neutral types in the population increases over time



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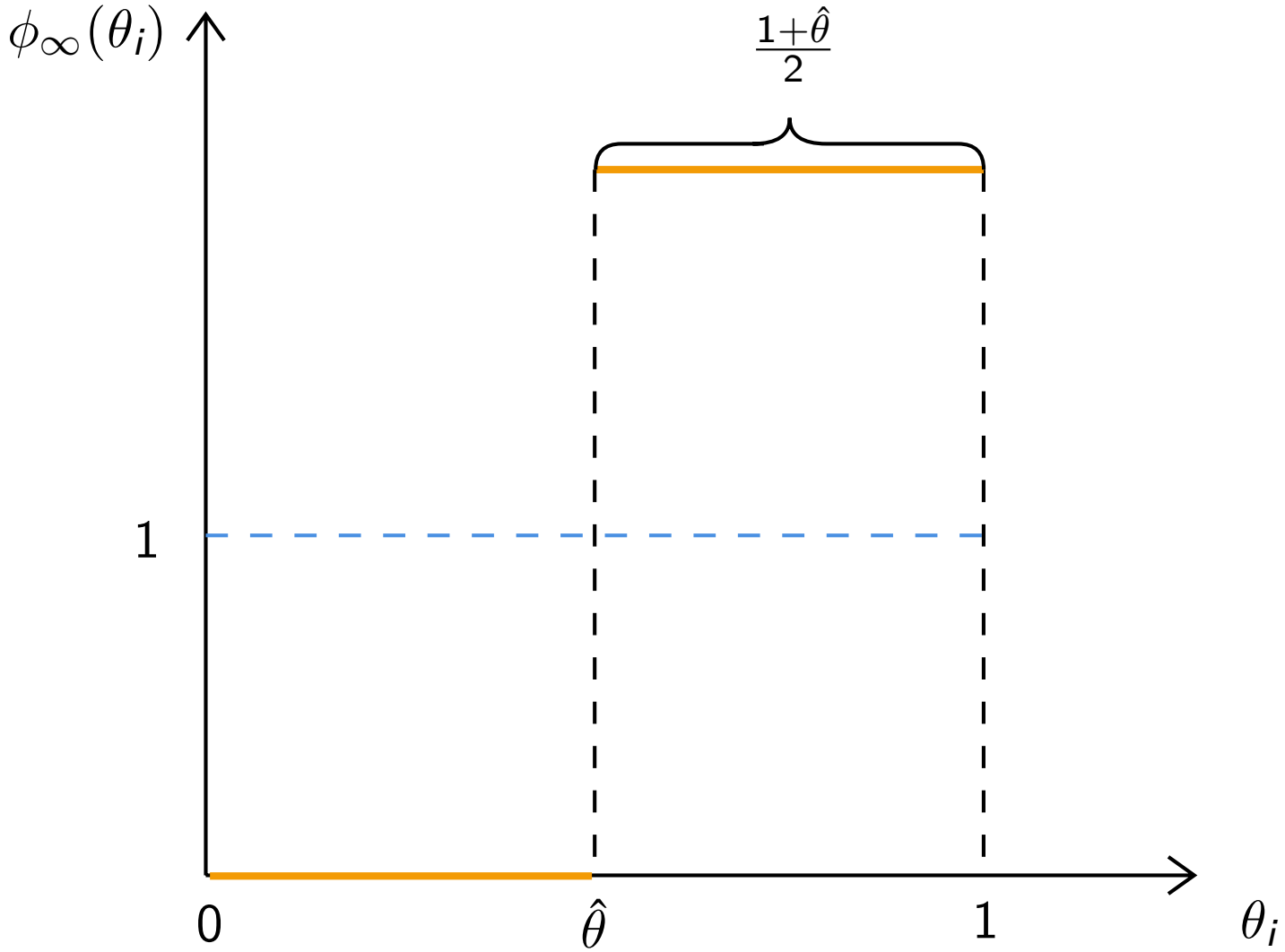
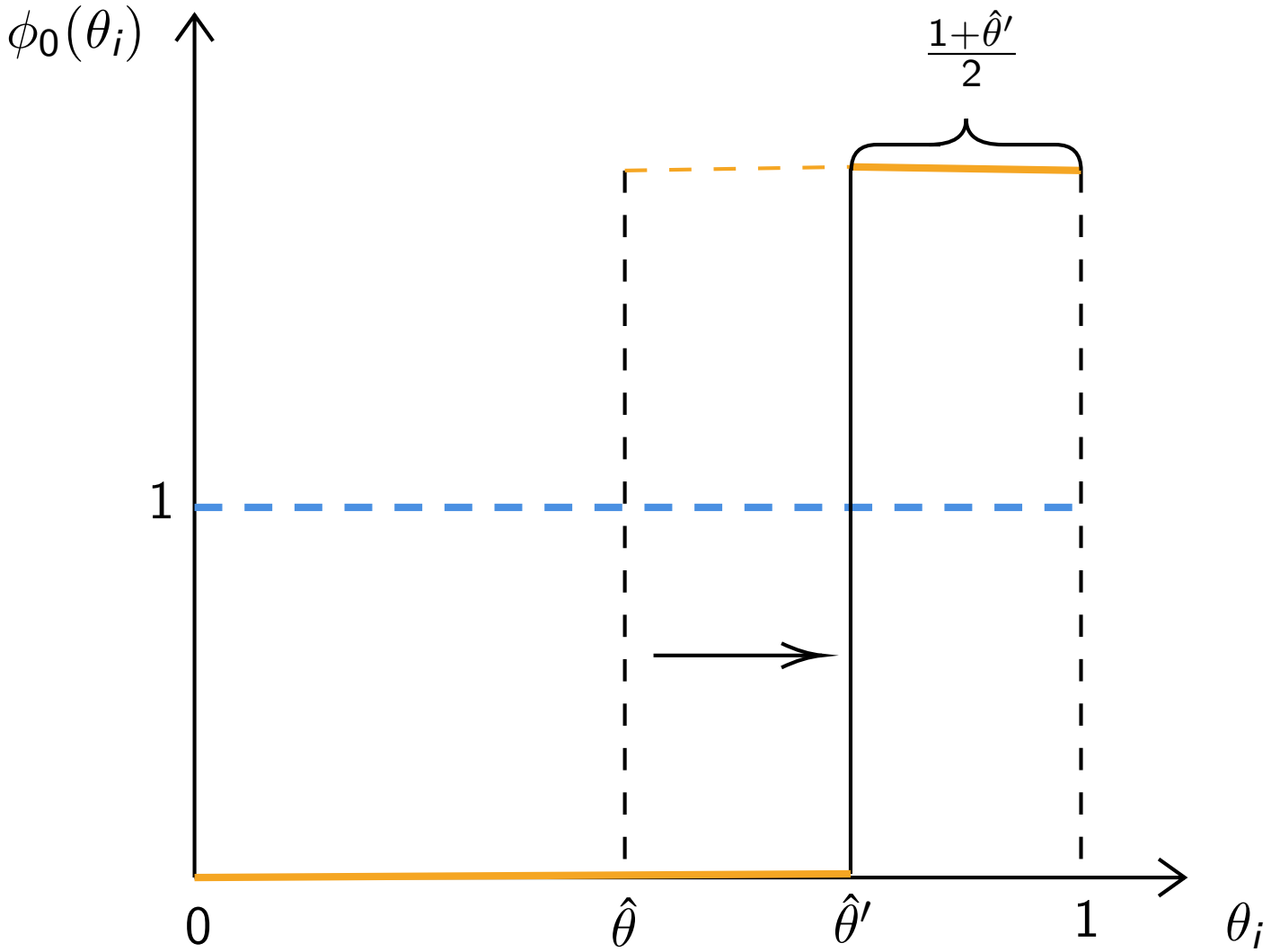
In the long run Loss Neutral types completely dominates and $\bar{\theta} = \frac{1+\hat{\theta}}{2}$



Volatility and the Composition of Los Aversion in the LR

Greater volatility is associated with higher Loss Neutrality: $\bar{\theta} = \frac{1+\hat{\theta}'}{2} > \frac{1+\hat{\theta}}{2}$



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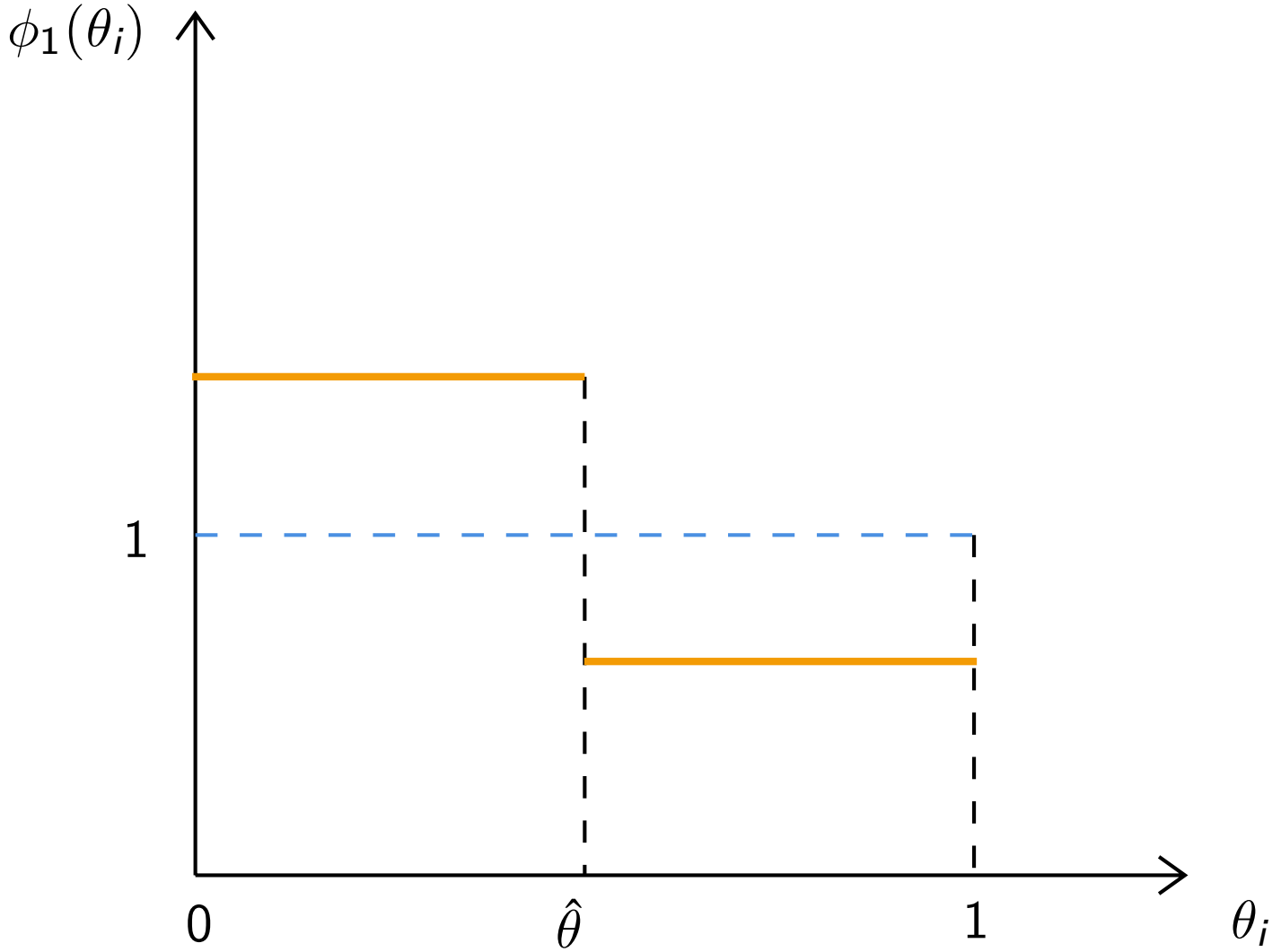

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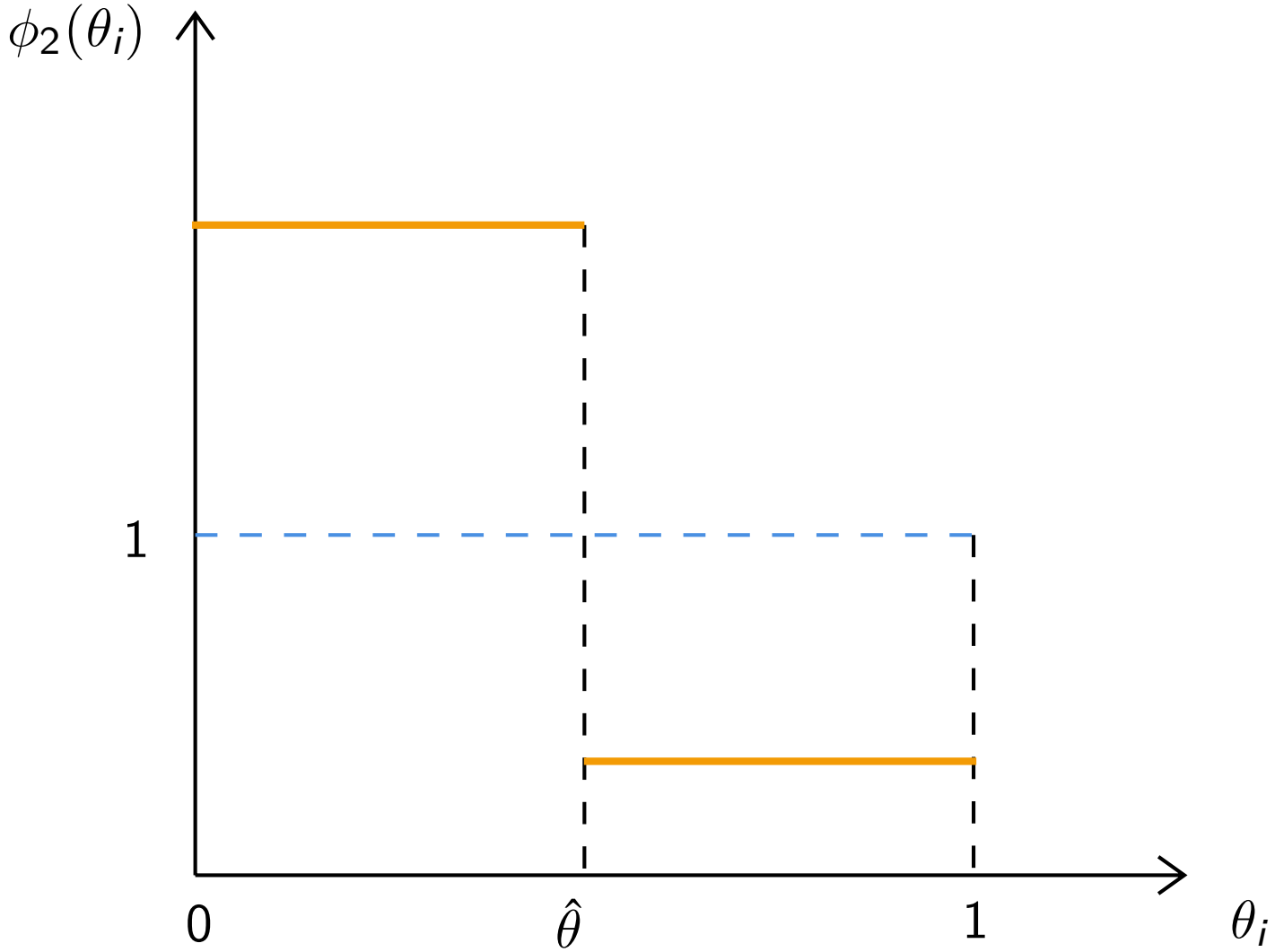

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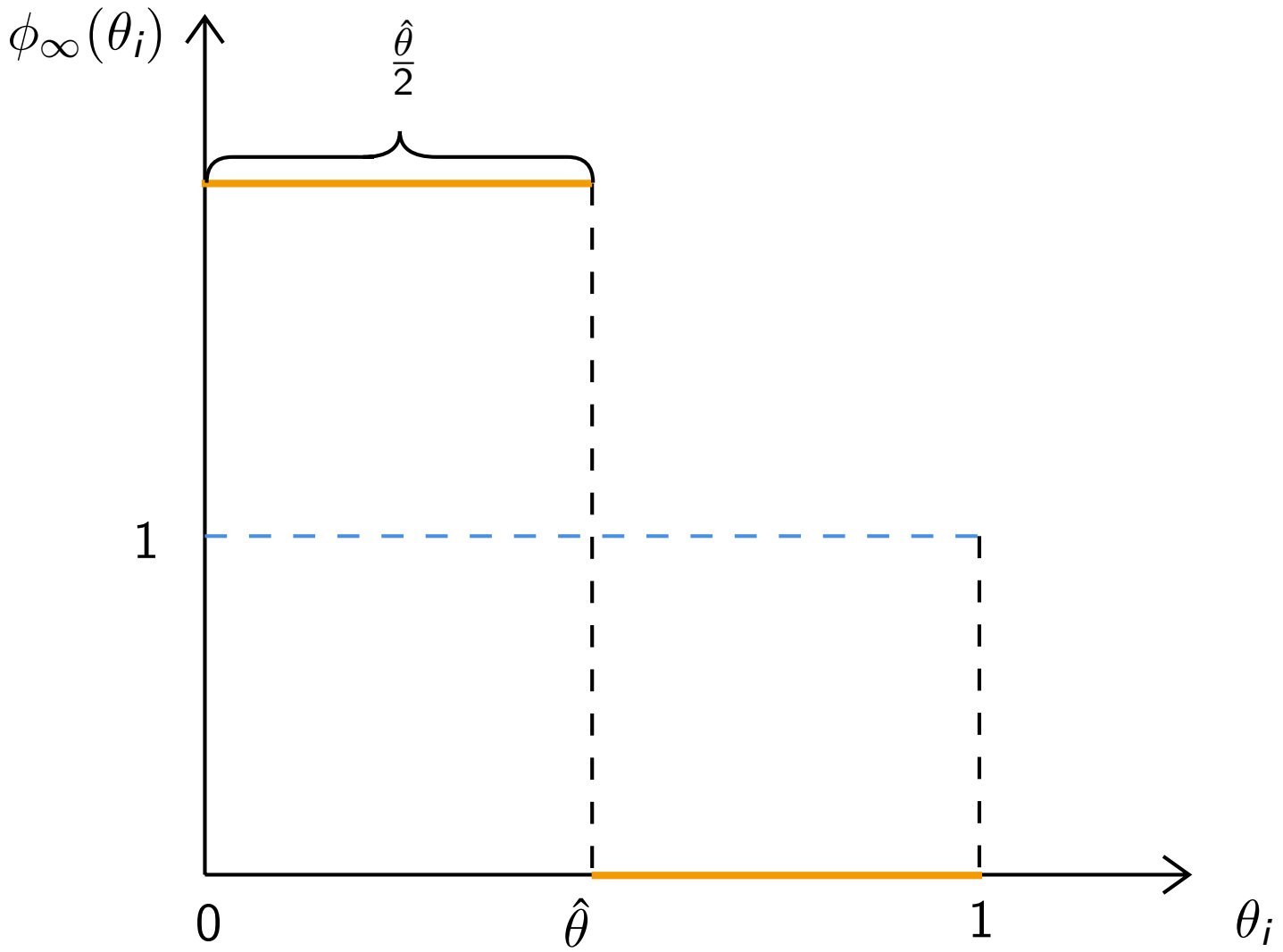

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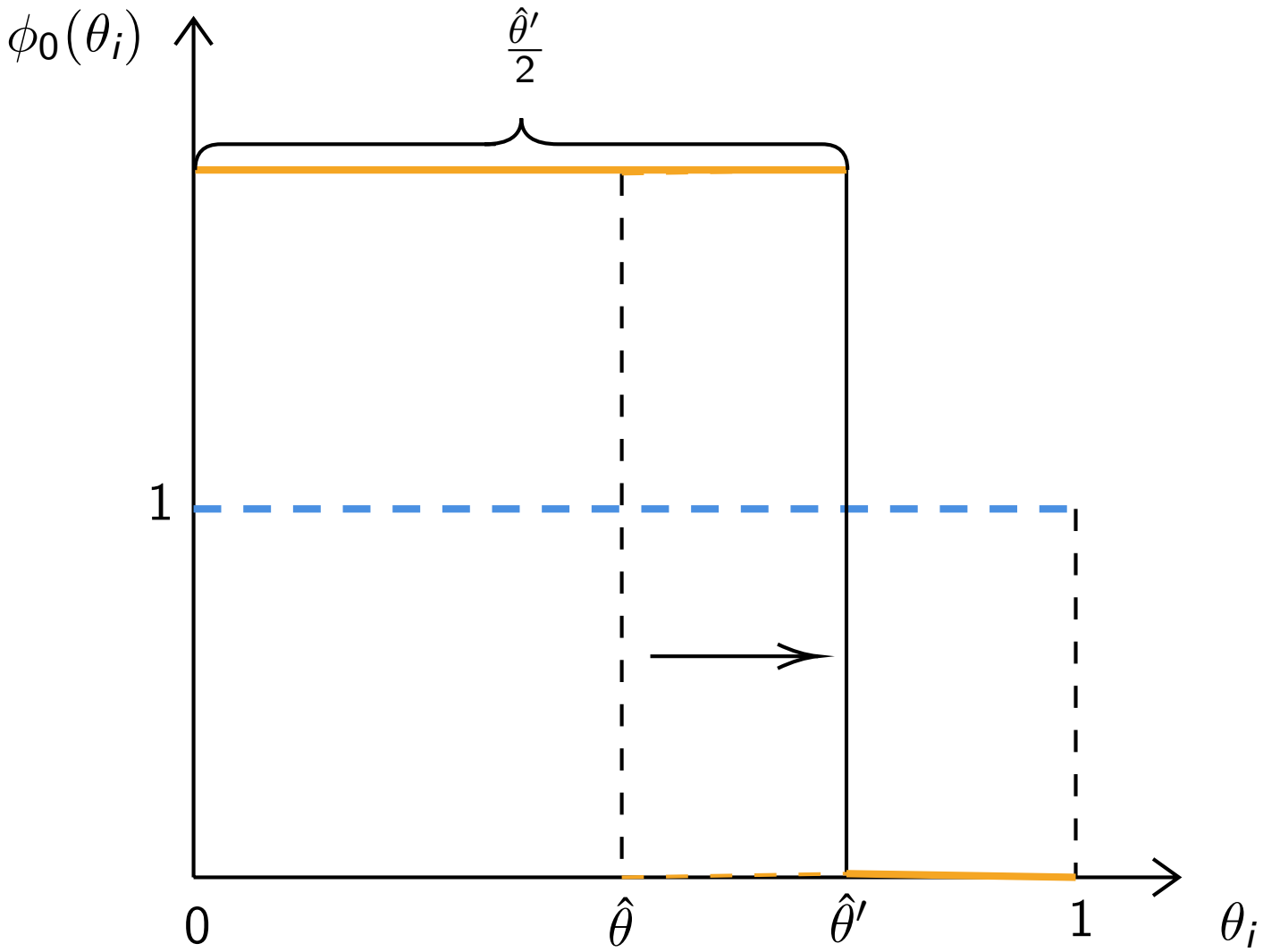
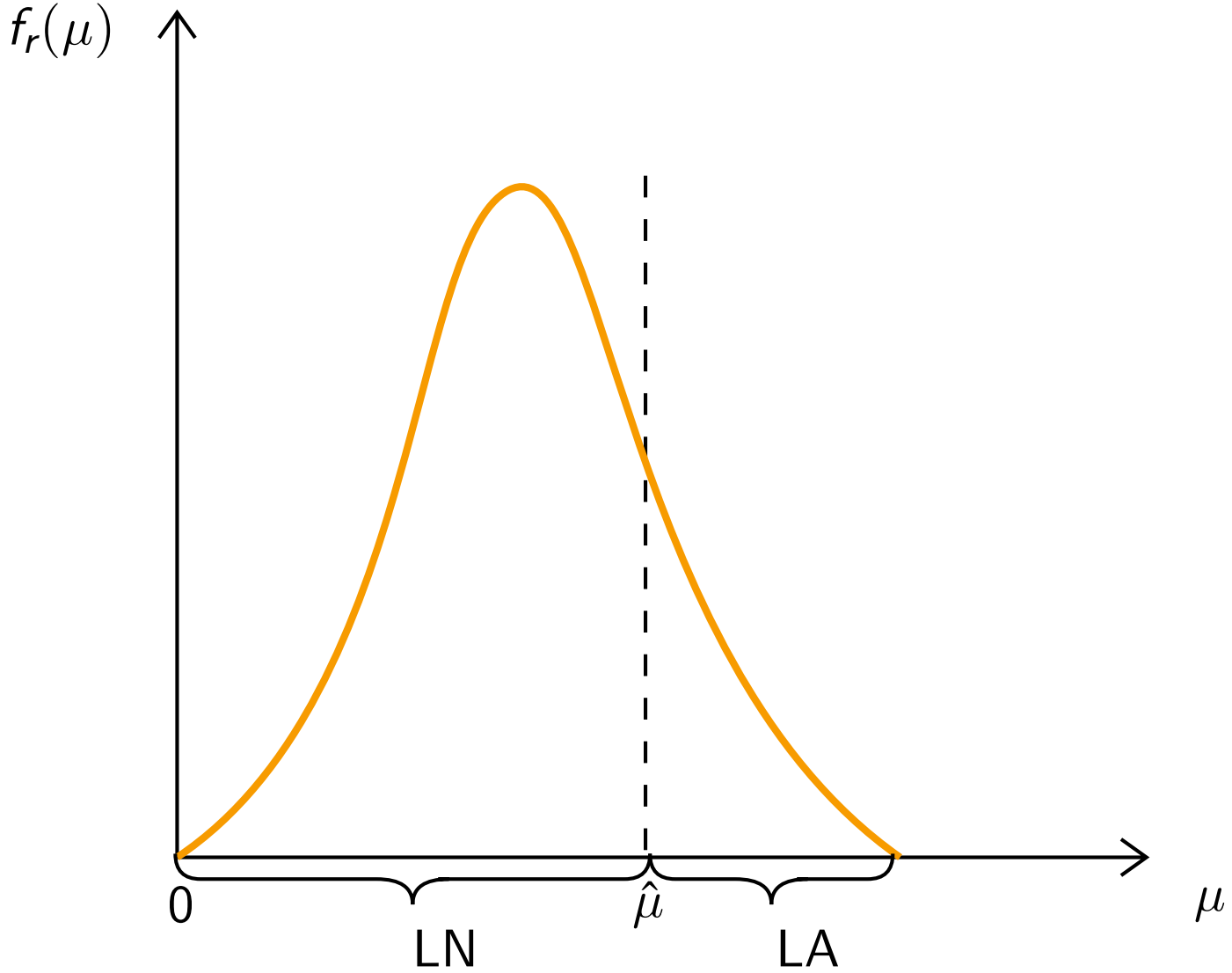


Positive Effect of Correlated Shocks on Loss Aversion

In regions where $\mu < \hat{\mu}$, **Loss Neutral** types dominate



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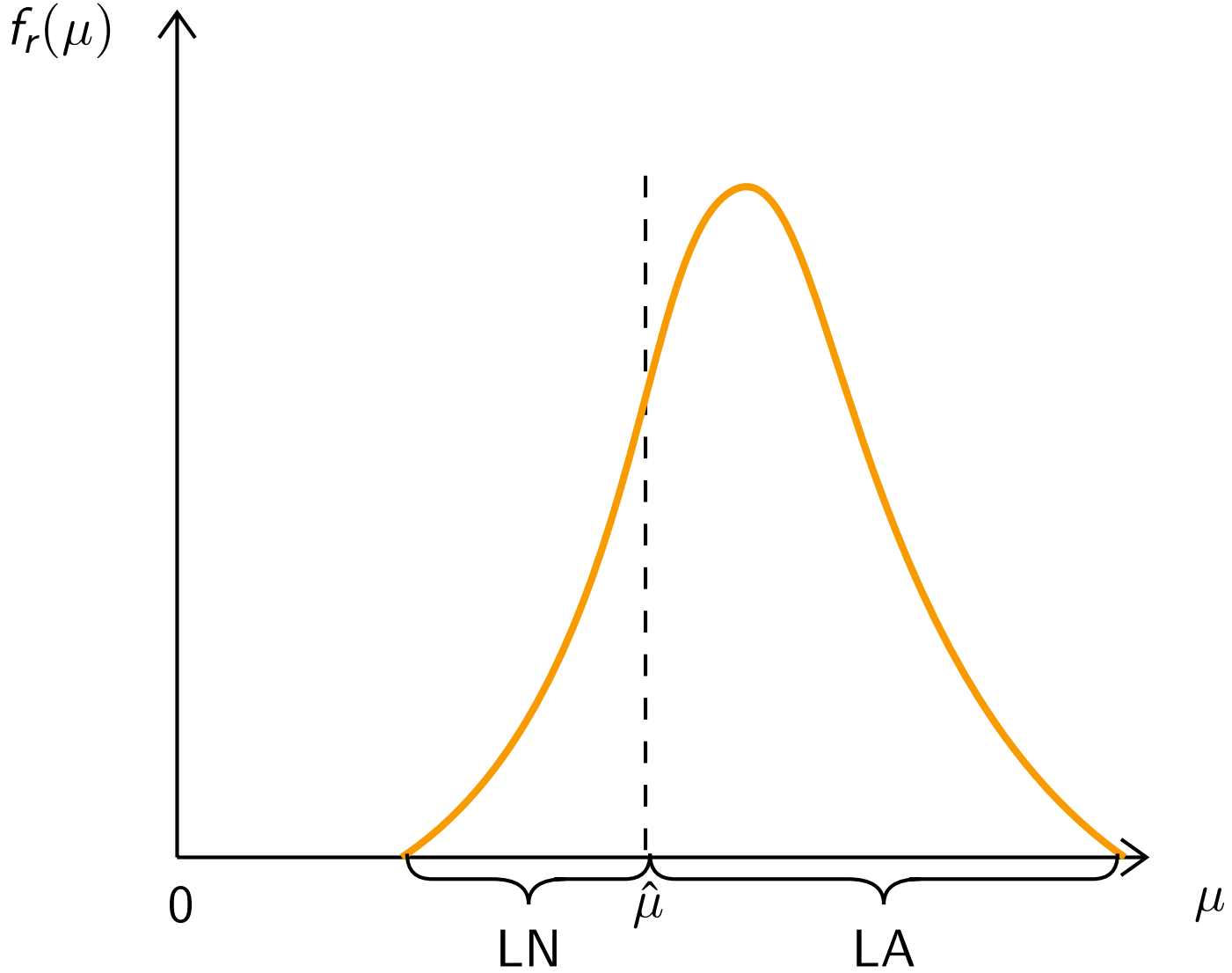

Main Predictions

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2. **Positive** effect of the spatial correlation of climatic shocks on the contemporary rate of loss aversion

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  - Variation in *behavior* across:

Empirical Analysis

- Variation in preferences and behavior across individuals and ethnic groups and their association with climatic volatility & correlations
  - Variation in *preferences* across
    - 3,907 second-generation migrants in Europe (ESS)
    - 1,328 second-generation migrants in the US (GSS)
    - 130,933 individual across the globe (WVS)
  - Variation in *preferences* across:
    - 471 pre-colonial ethnic groups (EA)
    - 123 pre-colonial ethnic groups (SCCS)
  - Variation in *behavior* across:
    - 1183 pre-colonial ethnic groups (EA)

Data: Climate

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  - Average standard deviation of monthly temperatures in the period 1900-2000 for each grid cell of $0.5^\circ \times 0.5^\circ$ (Climatic Research Unit (CRU) database)

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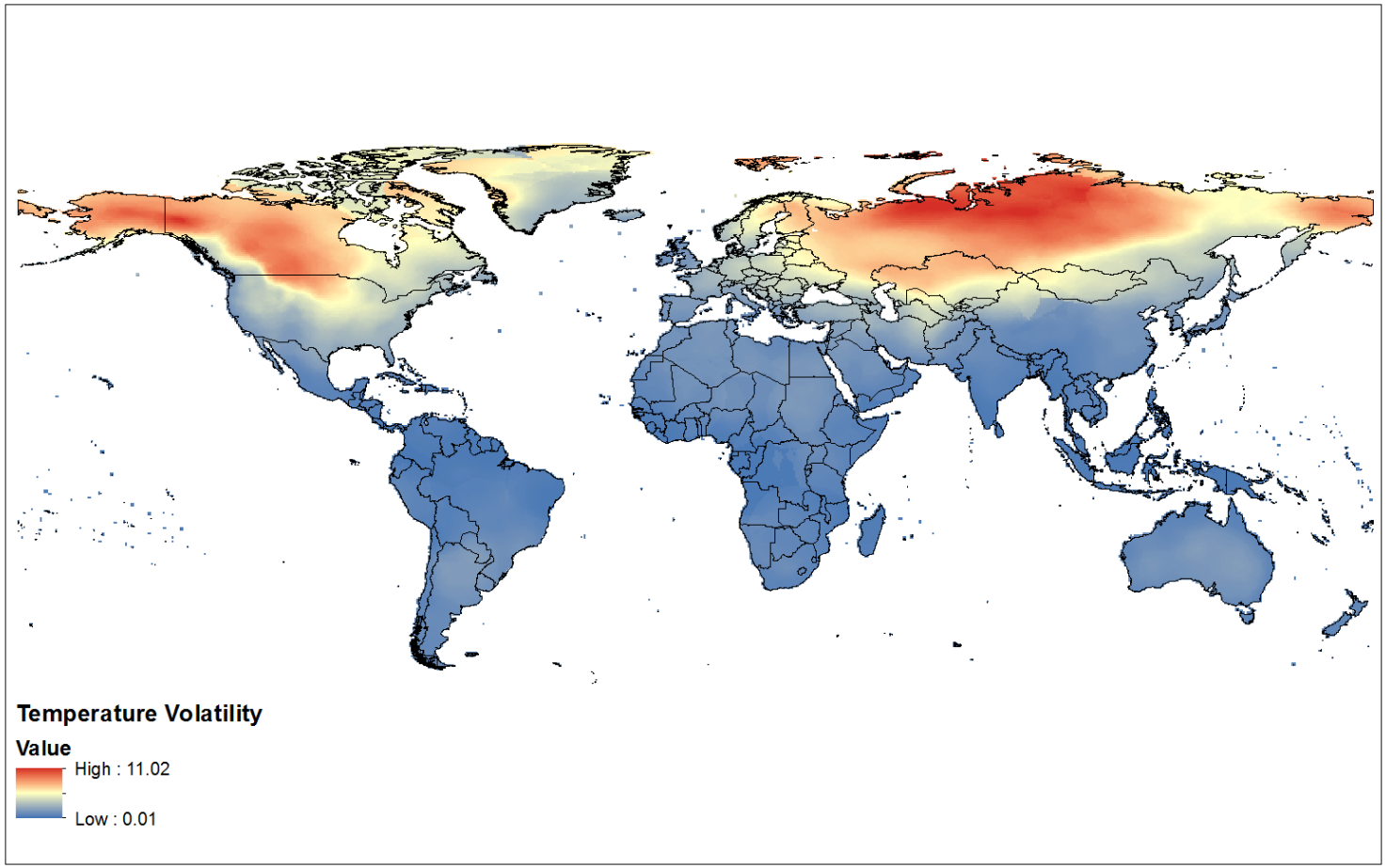
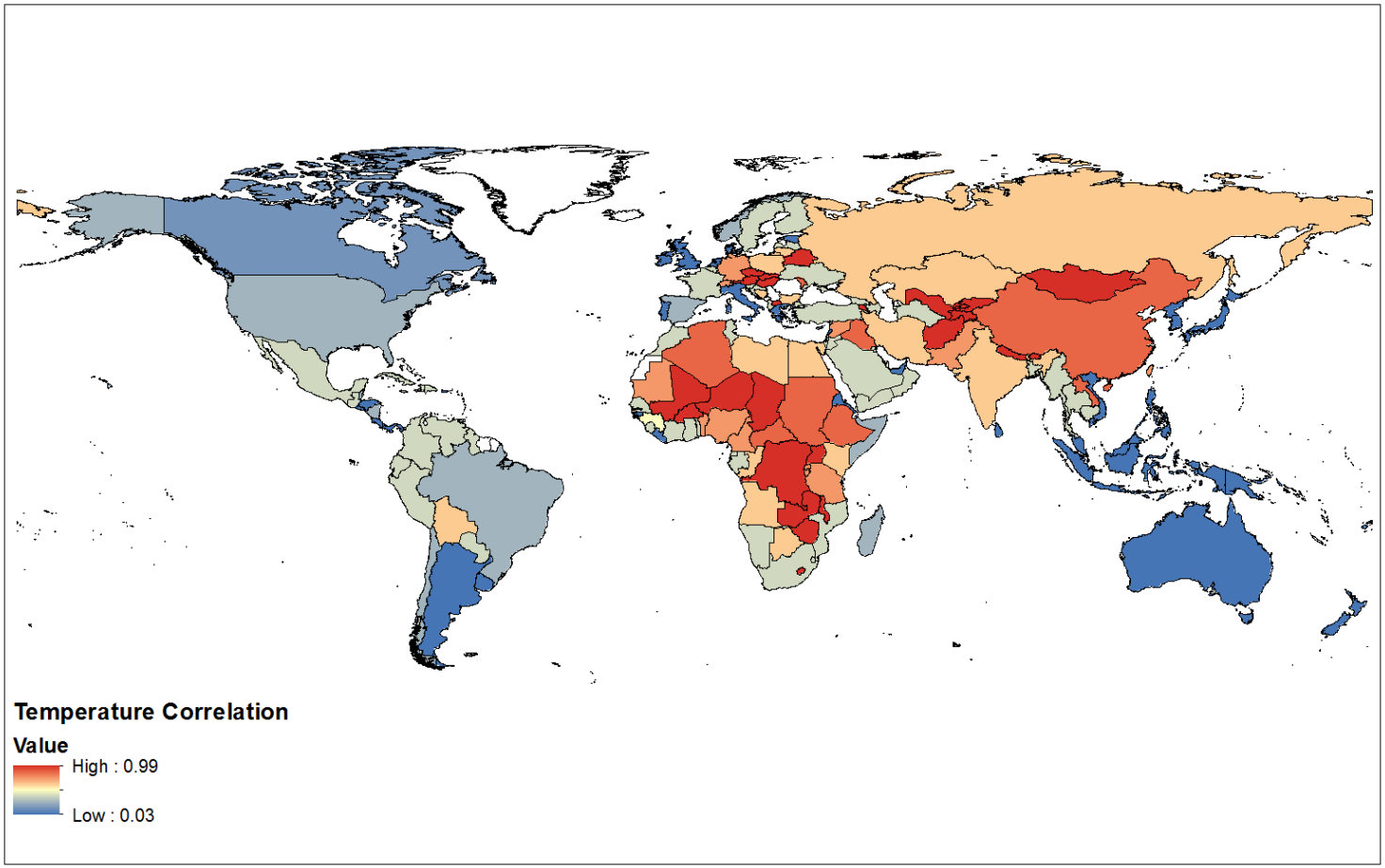
  - Average standard deviation of monthly temperatures in the period 1900-2000 for each grid cell of $0.5^\circ \times 0.5^\circ$ (Climatic Research Unit (CRU) database)
  - Standard deviation of annual temperatures in the period 500-1000 or 500-2000 for each grid cell of $5^\circ \times 5^\circ$ (Palioclimatic data constructed by Mann et al.; 2009)
- Spatial correlation in temperatures
  - Correlation of monthly temperatures over the period 1900-2000 of each grid cell of $0.5^\circ \times 0.5^\circ$ with the 8 adjacent cells (Climatic Research Unit (CRU) database)

Global Distribution of Temperature Volatility



Country Level

Global Distribution of Spatial Correlation in Temperature



Data: Loss Aversion

- Proxies for preferences that reflect loss aversion:

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  - Sleeping proximity of parents to infants (SCCS)
- Proxies for behavior that reflect loss aversion:
  - Diversification of the sources of subsistence (EA)
  - Cultivation of tubers rather than cereal (EA)

Map

Empirical Strategy

- Focus on second-generation migrants

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- Focus on second-generation migrants
  - Capture the effect of climatic volatility on culturally-embodied intergenerationally transmitted traits

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    - Confounding individual characteristics (education, income, gender, age, religion)
    - Confounding geographical characteristics and regional fixed effects in the parental county of origin
  - Establish that selection on unobservables is not a concern

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  - Disentangling the importance of evolutionary processes in the pre-1500 and the post-1500 period
- Focus on pre-colonial ethnic groups and contemporary societies
  - Demonstrate the prevalence of the association in the pre-industrial era and in the present

Empirical Model

- The linear effect of temperature volatility and spatial correlation on preferences for job security versus salary or other characteristics

$$job_{ict}^{sec} = \beta_0 + \beta_1^{vol} temp_{ip}^{vol} + \beta_1^{corr} temp_{ip}^{corr} + \sum_j \gamma_{0j} X_{ipj} + \gamma_1 YST_{ip} + \sum_j \gamma_{2j} Z_{ij} + \sum_c \gamma_c \delta_{ic} + \sum_t \gamma_t \delta'_{it} + \epsilon_i \quad (2)$$

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- Testable hypothesis: $\beta_1^{vol} < 0$ and $\beta_1^{corr} > 0$.

Climate & Loss Aversion: 2nd-Generation Migrants (ESS)

	Preferred Job Characteristic: Security vs. Salary					
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.157***	– 0.223***	– 0.228***	– 0.235***	– 0.241***	– 0.229***
	(0.045)	(0.046)	(0.062)	(0.062)	(0.062)	(0.061)
Temperature (Spatial Correlation)	0.034*	0.052**	0.059***	0.056***	0.057***	0.056***
	(0.020)	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)
Temperature (Mean)	-0.138***	-0.095*	-0.099	-0.135	-0.140	-0.088
	(0.043)	(0.050)	(0.092)	(0.093)	(0.091)	(0.092)
Absolute Latitude		0.093***	0.136**	0.109*	0.113*	0.152**
		(0.032)	(0.059)	(0.061)	(0.062)	(0.062)
Elevation (Mean)		-0.003	0.009	-0.000	0.001	0.009
		(0.017)	(0.022)	(0.024)	(0.024)	(0.024)
Land Suitability (Mean)			0.030	0.018	0.016	0.014
			(0.044)	(0.048)	(0.048)	(0.048)
Neolithic Transition Timing				0.019	0.020	0.011
				(0.016)	(0.016)	(0.016)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes
Round FE	No	No	No	No	Yes	Yes
Individual Controls	No	No	No	No	No	Yes
Adjusted-R^2	0.05	0.06	0.06	0.06	0.06	0.07
Observations	3907	3907	3907	3907	3907	3907

Ordered Probit | Selection on Unobservables | Precipitation vs Temperature | Preindustrial Dev | Weather Stations

Climate & Loss Aversion: 2nd-Generation Migrants (ESS)

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				(0.016)	(0.016)	(0.016)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes
Round FE	No	No	No	No	Yes	Yes
Individual Controls	No	No	No	No	No	Yes
Adjusted-R^2	0.05	0.06	0.06	0.06	0.06	0.07
Observations	3907	3907	3907	3907	3907	3907

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Risk vs Loss Aversion: 2nd-Generation Migrants (ESS)

	Preference For							
	Risk Seeking						Job Security	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Temperature (Volatility)	– 0.022	– 0.084	– 0.016	– 0.023	– 0.011	– 0.031	– 0.222***	– 0.220***
	(0.103)	(0.131)	(0.122)	(0.120)	(0.119)	(0.088)	(0.066)	(0.066)
Temperature (Spatial Correlation)	– 0.027	– 0.011	0.001	– 0.003	– 0.005	– 0.021	0.060***	0.060***
	(0.042)	(0.047)	(0.045)	(0.046)	(0.046)	(0.033)	(0.021)	(0.021)
Risk Seeking								-0.051***
								(0.010)
Temperature (Mean)	-0.227**	-0.139	-0.075	-0.116	-0.102	0.135	-0.073	-0.082
	(0.091)	(0.108)	(0.147)	(0.165)	(0.163)	(0.131)	(0.098)	(0.098)
Absolute Latitude		0.136**	0.046	0.015	0.009	0.170*	0.150**	0.139**
		(0.067)	(0.120)	(0.133)	(0.130)	(0.091)	(0.064)	(0.065)
Elevation (Mean)		0.012	0.050	0.039	0.037	0.082**	0.012	0.009
		(0.043)	(0.048)	(0.048)	(0.048)	(0.036)	(0.024)	(0.024)
Land Suitability (Mean)			-0.022	-0.036	-0.033	-0.034	0.018	0.020
			(0.066)	(0.070)	(0.071)	(0.052)	(0.047)	(0.048)
Neolithic Transition Timing				0.024	0.022	-0.033	0.009	0.011
				(0.038)	(0.038)	(0.028)	(0.017)	(0.017)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	No	No	No	No	Yes	Yes	Yes	Yes
Individual Controls	No	No	No	No	No	Yes	Yes	Yes
Adjusted-R^2	0.03	0.04	0.04	0.04	0.04	0.15	0.06	0.07
Observations	5699	5699	5699	5699	5699	5699	3784	3784

Risk vs Loss Aversion: 2nd-Generation Migrants (ESS)

	Preference For							
	Risk Seeking						Job Security	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Temperature (Volatility)	– 0.022	– 0.084	– 0.016	– 0.023	– 0.011	– 0.031	– 0.222***	– 0.220***
	(0.103)	(0.131)	(0.122)	(0.120)	(0.119)	(0.088)	(0.066)	(0.066)
Temperature (Spatial Correlation)	– 0.027	– 0.011	0.001	– 0.003	– 0.005	– 0.021	0.060***	0.060***
	(0.042)	(0.047)	(0.045)	(0.046)	(0.046)	(0.033)	(0.021)	(0.021)
Risk Seeking								-0.051***
								(0.010)
Temperature (Mean)	-0.227**	-0.139	-0.075	-0.116	-0.102	0.135	-0.073	-0.082
	(0.091)	(0.108)	(0.147)	(0.165)	(0.163)	(0.131)	(0.098)	(0.098)
Absolute Latitude		0.136**	0.046	0.015	0.009	0.170*	0.150**	0.139**
		(0.067)	(0.120)	(0.133)	(0.130)	(0.091)	(0.064)	(0.065)
Elevation (Mean)		0.012	0.050	0.039	0.037	0.082**	0.012	0.009
		(0.043)	(0.048)	(0.048)	(0.048)	(0.036)	(0.024)	(0.024)
Land Suitability (Mean)			-0.022	-0.036	-0.033	-0.034	0.018	0.020
			(0.066)	(0.070)	(0.071)	(0.052)	(0.047)	(0.048)
Neolithic Transition Timing				0.024	0.022	-0.033	0.009	0.011
				(0.038)	(0.038)	(0.028)	(0.017)	(0.017)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	No	No	No	No	Yes	Yes	Yes	Yes
Individual Controls	No	No	No	No	No	Yes	Yes	Yes
Adjusted-R^2	0.03	0.04	0.04	0.04	0.04	0.15	0.06	0.07
Observations	5699	5699	5699	5699	5699	5699	3784	3784

Orthogonality of Climate & Other Cultural Traits (ESS)

	Cultural Dimensions						
	(1) LTO	(2) Obedience	(3) Altruism	(4) Equality	(5) Gender	(6) Strong Gov.	(7) Tradition
Temperature (Volatility)	0.776	0.006	0.088	0.047	0.036	0.134	-0.056
	(0.694)	(0.104)	(0.098)	(0.087)	(0.105)	(0.108)	(0.118)
Temperature (Spatial Correlation)	-0.066	0.046	-0.022	0.048	0.040	-0.025	0.012
	(0.137)	(0.032)	(0.027)	(0.033)	(0.034)	(0.036)	(0.031)
Temperature (Mean)	0.142	0.117	0.135	0.025	-0.180	0.119	0.005
	(0.661)	(0.151)	(0.146)	(0.121)	(0.159)	(0.141)	(0.187)
Absolute Latitude	-0.389	0.022	0.069	0.102	-0.139	0.124	0.018
	(0.565)	(0.104)	(0.105)	(0.081)	(0.092)	(0.093)	(0.096)
Elevation (Mean)	-0.408	-0.011	0.016	-0.019	-0.143***	0.038	-0.065*
	(0.263)	(0.035)	(0.029)	(0.029)	(0.041)	(0.031)	(0.037)
Land Suitability (Mean)	0.103	0.018	0.068	-0.005	-0.038	-0.074*	0.103**
	(0.272)	(0.055)	(0.055)	(0.059)	(0.056)	(0.042)	(0.050)
Neolithic Transition Timing	0.206	-0.022	-0.040*	-0.025	0.033	-0.022	-0.106***
	(0.282)	(0.027)	(0.024)	(0.022)	(0.034)	(0.025)	(0.032)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.07	0.13	0.07	0.05	0.15	0.15	0.19
Observations	1416	5695	5718	5704	4401	5693	5712

Variables Description

Robustness of the Effect to other Cultural Dimension

	Preference for Job Security vs Salary					
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.228***	– 0.230***	– 0.243***	– 0.229***	– 0.229***	– 0.226***
	(0.069)	(0.068)	(0.068)	(0.062)	(0.068)	(0.067)
Temperature (Spatial Correlation)	0.062***	0.062***	0.064***	0.057***	0.064***	0.060***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Obedience	0.023*					
	(0.012)					
Altruism		0.032**				
		(0.015)				
Equality			0.030**			
			(0.014)			
Gender				-0.002		
				(0.010)		
Strong Gov.					0.034***	
					(0.013)	
Tradition						0.019
						(0.011)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.07	0.07	0.07	0.07	0.07	0.06
Observations	3788	3798	3788	3867	3777	3793

Climate & Loss Aversion: 2nd-Generation Migrants (GSS)

	Preferred Job Characteristic						
	Security vs Others					Security vs Salary	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.184*	– 0.219**	– 0.357***	– 0.328***	– 0.453***	– 0.424***	– 0.515***
	(0.094)	(0.083)	(0.073)	(0.074)	(0.072)	(0.132)	(0.161)
Temperature (Spatial Correlation)	0.125**	0.151***	0.176***	0.195***	0.197***	0.241***	0.238***
	(0.048)	(0.051)	(0.053)	(0.065)	(0.046)	(0.084)	(0.066)
Temperature (Mean)	-0.054	-0.045	-0.097	-0.006	-0.070	-0.099	-0.322
	(0.079)	(0.142)	(0.096)	(0.103)	(0.125)	(0.182)	(0.211)
Absolute Latitude		0.018	0.052	0.108	0.186	0.333	0.092
		(0.123)	(0.156)	(0.159)	(0.197)	(0.273)	(0.366)
Elevation (Mean)		-0.045	-0.139	-0.052	-0.160*	-0.162	-0.295*
		(0.062)	(0.091)	(0.103)	(0.085)	(0.197)	(0.168)
Land Suitability (Mean)			-0.125	-0.072	-0.164**	-0.120	-0.197
			(0.092)	(0.095)	(0.078)	(0.162)	(0.158)
Neolithic Transition Timing				-0.103	-0.070	-0.082	-0.044
				(0.065)	(0.065)	(0.101)	(0.091)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	No	Yes	No	Yes
Individual Controls	No	No	No	No	Yes	No	Yes
Adjusted-R^2	0.02	0.02	0.01	0.01	0.09	0.05	0.07
Observations	1328	1328	1328	1328	1171	1171	1171

Ordered Probit | Selection on Unobservables | Precipitation vs Temperature | Preindustrial Dev | Weather Stations

Climate & Loss Aversion: 2nd-Generation Migrants (GSS)

	Preferred Job Characteristic						
	Security vs Others					Security vs Salary	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.184*	– 0.219**	– 0.357***	– 0.328***	– 0.453***	– 0.424***	– 0.515***
	(0.094)	(0.083)	(0.073)	(0.074)	(0.072)	(0.132)	(0.161)
Temperature (Spatial Correlation)	0.125**	0.151***	0.176***	0.195***	0.197***	0.241***	0.238***
	(0.048)	(0.051)	(0.053)	(0.065)	(0.046)	(0.084)	(0.066)
Temperature (Mean)	-0.054	-0.045	-0.097	-0.006	-0.070	-0.099	-0.322
	(0.079)	(0.142)	(0.096)	(0.103)	(0.125)	(0.182)	(0.211)
Absolute Latitude		0.018	0.052	0.108	0.186	0.333	0.092
		(0.123)	(0.156)	(0.159)	(0.197)	(0.273)	(0.366)
Elevation (Mean)		-0.045	-0.139	-0.052	-0.160*	-0.162	-0.295*
		(0.062)	(0.091)	(0.103)	(0.085)	(0.197)	(0.168)
Land Suitability (Mean)			-0.125	-0.072	-0.164**	-0.120	-0.197
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Neolithic Transition Timing				-0.103	-0.070	-0.082	-0.044
				(0.065)	(0.065)	(0.101)	(0.091)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	No	Yes	No	Yes
Individual Controls	No	No	No	No	Yes	No	Yes
Adjusted-R^2	0.02	0.02	0.01	0.01	0.09	0.05	0.07
Observations	1328	1328	1328	1328	1171	1171	1171

Ordered Probit | Selection on Unobservables | Precipitation vs Temperature | Preindustrial Dev | Weather Stations

Climate & Loss Aversion: 2nd-Generation Migrants (GSS)

	Preferred Job Characteristic						
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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.184*	– 0.219**	– 0.357***	– 0.328***	– 0.453***	– 0.424***	– 0.515***
	(0.094)	(0.083)	(0.073)	(0.074)	(0.072)	(0.132)	(0.161)
Temperature (Spatial Correlation)	0.125**	0.151***	0.176***	0.195***	0.197***	0.241***	0.238***
	(0.048)	(0.051)	(0.053)	(0.065)	(0.046)	(0.084)	(0.066)
Temperature (Mean)	-0.054	-0.045	-0.097	-0.006	-0.070	-0.099	-0.322
	(0.079)	(0.142)	(0.096)	(0.103)	(0.125)	(0.182)	(0.211)
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Neolithic Transition Timing				-0.103	-0.070	-0.082	-0.044
				(0.065)	(0.065)	(0.101)	(0.091)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	No	Yes	No	Yes
Individual Controls	No	No	No	No	Yes	No	Yes
Adjusted-R^2	0.02	0.02	0.01	0.01	0.09	0.05	0.07
Observations	1328	1328	1328	1328	1171	1171	1171

Ordered Probit | Selection on Unobservables | Precipitation vs Temperature | Preindustrial Dev | Weather Stations

Orthogonality of Climate & Other Cultural Traits (GSS)

	Cultural Dimensions					
	(1) LTO	(2) Obedience	(3) Altruism	(4) Equality	(5) Gender	(6) Government
Temperature (Volatility)	0.048	0.173	0.005	0.224	-0.007	-0.028
	(0.029)	(0.120)	(0.081)	(0.140)	(0.022)	(0.050)
Temperature (Spatial Correlation)	-0.028	-0.041	-0.026	-0.147	-0.003	0.009
	(0.017)	(0.047)	(0.022)	(0.094)	(0.009)	(0.035)
Temperature (Mean)	-0.149*	0.470***	-0.027	-0.178	0.027	-0.103
	(0.075)	(0.161)	(0.179)	(0.268)	(0.036)	(0.079)
Absolute Latitude	-0.079	0.397**	0.074	-0.116	0.074	-0.062
	(0.071)	(0.170)	(0.206)	(0.385)	(0.051)	(0.110)
Elevation (Mean)	0.065*	0.326***	0.032	0.031	-0.007	-0.033
	(0.038)	(0.102)	(0.098)	(0.124)	(0.017)	(0.035)
Land Suitability (Mean)	0.012	-0.020	-0.094**	-0.108	0.102***	-0.117**
	(0.029)	(0.134)	(0.046)	(0.175)	(0.017)	(0.048)
Neolithic Transition Timing	0.008	-0.238***	0.042	0.077	-0.040***	0.068**
	(0.029)	(0.080)	(0.101)	(0.087)	(0.014)	(0.028)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.08	0.15	0.02	0.06	0.11	0.04
Observations	1269	1285	1287	1841	1444	2181

Variables Description

Climate & Loss Aversion: Placebo Tests

	GSS			ESS		
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	-0.081	0.126	0.177*	-0.058	0.172	0.130
	(0.123)	(0.101)	(0.090)	(0.096)	(0.115)	(0.102)
Temperature (Spatial Correlation)	-0.077	-0.013	0.053	0.049	-0.035	0.014
	(0.089)	(0.045)	(0.040)	(0.039)	(0.035)	(0.043)
Temperature (Mean)	-0.219	0.052	0.477***	0.092	0.022	0.146
	(0.201)	(0.156)	(0.130)	(0.138)	(0.156)	(0.117)
Absolute Latitude	-0.026	-0.095	0.500**	0.142	-0.168	0.001
	(0.278)	(0.171)	(0.184)	(0.103)	(0.129)	(0.105)
Elevation (Mean)	-0.167	0.206**	0.022	0.031	-0.024	0.013
	(0.102)	(0.077)	(0.061)	(0.038)	(0.041)	(0.035)
Land Suitability (Mean)	-0.198	-0.101	0.340***	0.096*	-0.069	0.031
	(0.137)	(0.113)	(0.059)	(0.054)	(0.080)	(0.068)
Neolithic Transition Timing	0.052	0.052	-0.048	-0.012	0.016	-0.001
	(0.084)	(0.072)	(0.048)	(0.031)	(0.032)	(0.028)
Region/Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wave/Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.09	0.02	0.07	0.12	0.09	0.22
Observations	1171	1171	1171	2397	2391	2391

(1) short working hours (2) job satisfaction (3) promotion opportunities (4) training opportunities vs ability to use own initiative (5) training opportunities vs salary (6) salary vs ability to use own initiative

Climate & Loss Aversion: Placebo Tests

	GSS			ESS		
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	-0.081	0.126	0.177*	-0.058	0.172	0.130
	(0.123)	(0.101)	(0.090)	(0.096)	(0.115)	(0.102)
Temperature (Spatial Correlation)	-0.077	-0.013	0.053	0.049	-0.035	0.014
	(0.089)	(0.045)	(0.040)	(0.039)	(0.035)	(0.043)
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	(0.084)	(0.072)	(0.048)	(0.031)	(0.032)	(0.028)
Region/Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wave/Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.09	0.02	0.07	0.12	0.09	0.22
Observations	1171	1171	1171	2397	2391	2391

(1) short working hours (2) job satisfaction (3) promotion opportunities (4) training opportunities vs ability to use own initiative (5) training opportunities vs salary (6) salary vs ability to use own initiative

Robustness to the use of Historical Temperature Volatility

	Preferred Job Characteristic					
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility) 500-2000	– 0.277***	– 0.298***	– 0.297***			
	(0.062)	(0.060)	(0.056)			
Temperature (Volatility) 500-1000				– 0.269***	– 0.291***	– 0.291***
				(0.076)	(0.073)	(0.077)
Temperature (Spatial Correlation)	0.110***	0.110***	0.098***	0.134***	0.133***	0.121***
	(0.039)	(0.035)	(0.035)	(0.048)	(0.032)	(0.029)
Temperature (Mean)	-0.116	-0.135	-0.131	0.010	-0.013	-0.010
	(0.194)	(0.233)	(0.233)	(0.218)	(0.253)	(0.253)
Absolute Latitude	-0.048	-0.123	-0.034	0.081	-0.016	0.075
	(0.216)	(0.217)	(0.220)	(0.253)	(0.257)	(0.255)
Elevation (Mean)	0.045	0.024	0.046	0.082	0.061	0.082
	(0.099)	(0.110)	(0.115)	(0.100)	(0.111)	(0.116)
Land Suitability (Mean)	-0.121	-0.149*	-0.146*	-0.208*	-0.254**	-0.252**
	(0.092)	(0.077)	(0.086)	(0.114)	(0.099)	(0.108)
Neolithic Transition Timing	-0.070	-0.086	-0.087	-0.109*	-0.128**	-0.127*
	(0.071)	(0.072)	(0.074)	(0.059)	(0.060)	(0.062)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	No	Yes	Yes	No	Yes	Yes
Year FE	No	No	Yes	No	No	Yes
Adjusted-R^2	0.05	0.08	0.09	0.05	0.08	0.09
Observations	1166	1166	1166	1166	1166	1166

Stability of Temp Volatility over Time

Robustness to the use of Historical Temperature Volatility

	Preferred Job Characteristic					
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility) 500-2000	– 0.277***	– 0.298***	– 0.297***			
	(0.062)	(0.060)	(0.056)			
Temperature (Volatility) 500-1000				– 0.269***	– 0.291***	– 0.291***
				(0.076)	(0.073)	(0.077)
Temperature (Spatial Correlation)	0.110***	0.110***	0.098***	0.134***	0.133***	0.121***
	(0.039)	(0.035)	(0.035)	(0.048)	(0.032)	(0.029)
Temperature (Mean)	-0.116	-0.135	-0.131	0.010	-0.013	-0.010
	(0.194)	(0.233)	(0.233)	(0.218)	(0.253)	(0.253)
Absolute Latitude	-0.048	-0.123	-0.034	0.081	-0.016	0.075
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Neolithic Transition Timing	-0.070	-0.086	-0.087	-0.109*	-0.128**	-0.127*
	(0.071)	(0.072)	(0.074)	(0.059)	(0.060)	(0.062)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	No	Yes	Yes	No	Yes	Yes
Year FE	No	No	Yes	No	No	Yes
Adjusted-R^2	0.05	0.08	0.09	0.05	0.08	0.09
Observations	1166	1166	1166	1166	1166	1166

Stability of Temp Volatility over Time

Natural Experiment: Random Assignment of Volatility

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- Potential concern:

Natural Experiment: Random Assignment of Volatility

- Potential concern:
  - Sorting of loss averse individuals into less volatile regions

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Natural Experiment: Random Assignment of Volatility

- Potential concern:
  - Sorting of loss averse individuals into less volatile regions
- Remedy:
  - "Random assignment" of effective potential volatility to each region
    - Exogenous variation in the changes in effective potential volatility in the post 1500 period due to the Columbian Exchange

Exogenous Source of Variations in Effective Volatility

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- Estimate crop-specific vulnerability to temperature volatility

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  - Based on the growth cycle of the crop that maximizes potential yield prior to the year 1500, for every 0.5° by 0.5° grid cell across the globe)

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- Estimate crop-specific vulnerability to temperature volatility
  - Based on the growth cycle of the crop that maximizes potential yield prior to the year 1500, for every 0.5° by 0.5° grid cell across the globe)
  - Focus on potential effective volatility prior to the beginning of the growth cycle (e.g., when food scarcity is at its peak and climatic volatility may be particularly detrimental to the effectiveness of storage of crops and the hunting and gathering of supplementary food sources)

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  - Focus on potential effective volatility prior to the beginning of the growth cycle (e.g., when food scarcity is at its peak and climatic volatility may be particularly detrimental to the effectiveness of storage of crops and the hunting and gathering of supplementary food sources)
- Measure the change in the potential vulnerability to temperature volatility due to the Columbian Exchange

Exogenous Source of Variations in Effective Volatility

- Estimate crop-specific vulnerability to temperature volatility
  - Based on the growth cycle of the crop that maximizes potential yield prior to the year 1500, for every 0.5° by 0.5° grid cell across the globe)
  - Focus on potential effective volatility prior to the beginning of the growth cycle (e.g., when food scarcity is at its peak and climatic volatility may be particularly detrimental to the effectiveness of storage of crops and the hunting and gathering of supplementary food sources)
- Measure the change in the potential vulnerability to temperature volatility due to the Columbian Exchange
  - For every 0.5° by 0.5° grid cell across the globe

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
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		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
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		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
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		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Natural Experiment: Random Assignment of Volatility

	ESS			GSS					
	Security v Salary			Job Security			Security v Salary		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	– 0.250***			– 0.450***			– 0.587***		
	(0.060)			(0.059)			(0.121)		
Temperature (Volatility) pre 1500		– 0.102***	– 0.084***		– 0.321***	– 0.250***		– 0.462***	– 0.362***
		(0.036)	(0.032)		(0.063)	(0.046)		(0.157)	(0.115)
Temperature (Volatility) change		– 0.125***	– 0.113**		– 0.142***	– 0.132***		– 0.158**	– 0.142**
		(0.045)	(0.044)		(0.033)	(0.032)		(0.059)	(0.053)
Temperature (Spatial Correlation)	0.098***	0.100***		0.200***	0.139***		0.257***	0.194**	
	(0.029)	(0.031)		(0.047)	(0.042)		(0.068)	(0.086)	
Temperature (Correlation) pre 1500			0.108***			0.143***			0.200***
			(0.040)			(0.035)			(0.065)
Temperature (Correlation) change			-0.006			-0.011			-0.066
			(0.015)			(0.030)			(0.076)
Temperature (Mean)	-0.167*	-0.075	-0.111	-0.132	0.098	0.055	-0.306	0.079	0.039
	(0.091)	(0.088)	(0.089)	(0.080)	(0.117)	(0.099)	(0.180)	(0.231)	(0.192)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.06	0.06	0.09	0.09	0.09	0.08	0.07	0.08
Observations	3859	3859	3859	1172	1172	1172	1172	1172	1172

Ethnic Group Level Analysis – Preference

	Preferences for Cautiousness					
	Ethnographic Atlas					SCCS
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.145***	– 0.116***	– 0.070***	– 0.103***	– 0.077***	– 0.654***
	(0.021)	(0.018)	(0.021)	(0.027)	(0.025)	(0.211)
Temperature (Spatial Correlation)	0.070***	0.066***	0.070***	0.075***	0.049**	0.533***
	(0.026)	(0.024)	(0.023)	(0.022)	(0.020)	(0.198)
Temperature (Mean)	0.006	-0.004	-0.074***	-0.045*	-0.020	0.078
	(0.022)	(0.020)	(0.026)	(0.027)	(0.024)	(0.209)
Absolute Latitude			-0.118***	-0.072**	-0.028	0.487
			(0.034)	(0.036)	(0.038)	(0.296)
Elevation (Mean)			-0.036**	-0.014	-0.003	-0.512**
			(0.017)	(0.026)	(0.026)	(0.208)
Land Suitability (Mean)				-0.037*	-0.024	0.319*
				(0.020)	(0.023)	(0.182)
Multi-Dwelling Household						-0.093
						(0.330)
Ethnographic Controls	No	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	No	Yes	Yes	Yes
Continental FE	No	No	No	No	Yes	Yes
Adjusted-R^2	0.28	0.40	0.41	0.42	0.47	0.13
Observations	471	471	471	471	471	186

Ethnic Group Level Analysis – Preference

	Preferences for Cautiousness					
	Ethnographic Atlas					SCCS
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.145***	– 0.116***	– 0.070***	– 0.103***	– 0.077***	– 0.654***
	(0.021)	(0.018)	(0.021)	(0.027)	(0.025)	(0.211)
Temperature (Spatial Correlation)	0.070***	0.066***	0.070***	0.075***	0.049**	0.533***
	(0.026)	(0.024)	(0.023)	(0.022)	(0.020)	(0.198)
Temperature (Mean)	0.006	-0.004	-0.074***	-0.045*	-0.020	0.078
	(0.022)	(0.020)	(0.026)	(0.027)	(0.024)	(0.209)
Absolute Latitude			-0.118***	-0.072**	-0.028	0.487
			(0.034)	(0.036)	(0.038)	(0.296)
Elevation (Mean)			-0.036**	-0.014	-0.003	-0.512**
			(0.017)	(0.026)	(0.026)	(0.208)
Land Suitability (Mean)				-0.037*	-0.024	0.319*
				(0.020)	(0.023)	(0.182)
Multi-Dwelling Household						-0.093
						(0.330)
Ethnographic Controls	No	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	No	Yes	Yes	Yes
Continental FE	No	No	No	No	Yes	Yes
Adjusted-R^2	0.28	0.40	0.41	0.42	0.47	0.13
Observations	471	471	471	471	471	186

Ethnic Group Level Analysis – Behavior

	Behavior				
	Diversification (subsistence sources)		Crop Choice: Prob(Tubers/Cereals)		
	(1)	(2)	(3)	(4)	(5)
Temperature (Volatility)	– 0.061**	– 0.062***	– 0.889***	– 0.899***	– 0.939***
	(0.024)	(0.024)	(0.231)	(0.233)	(0.249)
Temperature (Spatial Correlation)	0.042**	0.050**	0.272**	0.271**	0.283**
	(0.021)	(0.022)	(0.117)	(0.118)	(0.120)
Temperature (Mean)	0.020	0.015	-0.715***	-0.701***	-0.520**
	(0.025)	(0.025)	(0.259)	(0.255)	(0.252)
Absolute Latitude	0.105***	0.105***	-0.788***	-0.800***	-0.705***
	(0.031)	(0.031)	(0.226)	(0.223)	(0.222)
Elevation (Mean)	-0.034*	-0.030	-0.562***	-0.585***	-0.517**
	(0.018)	(0.022)	(0.171)	(0.219)	(0.210)
Crop Yield (pre-1500CE) (Mean)	-0.012	-0.019	0.310***	0.358***	0.673***
	(0.017)	(0.018)	(0.114)	(0.125)	(0.162)
Distance to the coast	-0.048***	-0.055***	-0.077	-0.094	-0.109
	(0.015)	(0.016)	(0.087)	(0.091)	(0.093)
Precipitation (Mean)	0.050**	-0.004	0.008	0.022	-0.073
	(0.020)	(0.027)	(0.123)	(0.122)	(0.120)
Suitability for Cereals (Mean)					-0.329**
					(0.131)
Suitability for Roots (Mean)					-0.086
					(0.126)
Ethnographic Controls	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	Yes	No	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.07	0.08			
Pseudo-R^2			0.51	0.51	0.52
Observations	1183	1183	853	853	849

Ethnic Group Level Analysis – Behavior

	Behavior				
	Diversification (subsistence sources)		Crop Choice: Prob(Tubers/Cereals)		
	(1)	(2)	(3)	(4)	(5)
Temperature (Volatility)	– 0.061**	– 0.062***	– 0.889***	– 0.899***	– 0.939***
	(0.024)	(0.024)	(0.231)	(0.233)	(0.249)
Temperature (Spatial Correlation)	0.042**	0.050**	0.272**	0.271**	0.283**
	(0.021)	(0.022)	(0.117)	(0.118)	(0.120)
Temperature (Mean)	0.020	0.015	-0.715***	-0.701***	-0.520**
	(0.025)	(0.025)	(0.259)	(0.255)	(0.252)
Absolute Latitude	0.105***	0.105***	-0.788***	-0.800***	-0.705***
	(0.031)	(0.031)	(0.226)	(0.223)	(0.222)
Elevation (Mean)	-0.034*	-0.030	-0.562***	-0.585***	-0.517**
	(0.018)	(0.022)	(0.171)	(0.219)	(0.210)
Crop Yield (pre-1500CE) (Mean)	-0.012	-0.019	0.310***	0.358***	0.673***
	(0.017)	(0.018)	(0.114)	(0.125)	(0.162)
Distance to the coast	-0.048***	-0.055***	-0.077	-0.094	-0.109
	(0.015)	(0.016)	(0.087)	(0.091)	(0.093)
Precipitation (Mean)	0.050**	-0.004	0.008	0.022	-0.073
	(0.020)	(0.027)	(0.123)	(0.122)	(0.120)
Suitability for Cereals (Mean)					-0.329**
					(0.131)
Suitability for Roots (Mean)					-0.086
					(0.126)
Ethnographic Controls	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	Yes	No	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.07	0.08			
Pseudo-R^2			0.51	0.51	0.52
Observations	1183	1183	853	853	849

Placebo Tests (Ethnographic Atlas)

	(1) Sex Taboos	(2) Political Integration	(3) Property Rights	(4) Gender Roles	(5) Premarital Sex	(6) Evil Eye Belief
Temperature (Volatility)	0.124	0.068	0.009	-0.047	0.209	-0.003
	(0.154)	(0.129)	(0.024)	(0.040)	(0.149)	(0.058)
Temperature (Spatial Correlation)	0.044	-0.118	-0.007	0.017	-0.150	-0.008
	(0.116)	(0.128)	(0.022)	(0.035)	(0.136)	(0.052)
Temperature (Mean)	0.060	0.210**	0.012	-0.080**	-0.297**	0.066*
	(0.188)	(0.089)	(0.028)	(0.034)	(0.136)	(0.040)
Absolute Latitude	-0.050	0.410**	0.025	0.019	-0.367**	0.106
	(0.229)	(0.168)	(0.033)	(0.048)	(0.175)	(0.076)
Elevation (Mean)	0.128	-0.370***	0.057**	-0.048	-0.138	0.134**
	(0.145)	(0.128)	(0.023)	(0.033)	(0.121)	(0.062)
Land Suitability (Mean)	0.036	0.118	-0.011	-0.013	-0.075	0.058
	(0.097)	(0.096)	(0.015)	(0.028)	(0.101)	(0.040)
Ethnographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.19	0.41	0.60	0.04	0.07	0.23
Observations	374	314	816	737	586	199

Individual Level Analysis (WVS)

	Preferred Job Characteristic: Security vs Others						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.060***	– 0.063***	– 0.049***	– 0.031***	– 0.031***	– 0.031***	
	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	
Temperature (Spatial Correlation)	0.013***	0.014***	0.016***	0.021***	0.020***	0.017***	
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	
Temperature (Volatility, Ancestral)							– 0.023***
							(0.007)
Temp (Spatial Correlation, Ancestral)							0.010***
							(0.004)
Temperature (Mean)	-0.016***	-0.010	0.008	0.043***	0.050***	0.046***	0.047***
	(0.005)	(0.007)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)
Absolute Latitude		0.010	0.011	0.041***	0.074***	0.069***	0.059***
		(0.007)	(0.010)	(0.011)	(0.012)	(0.011)	(0.011)
Elevation (Mean)	-0.023***	-0.021***	0.013***	0.024***	0.014***	0.010**	0.009*
	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)
Land Suitability (Mean)			0.028***	0.042***	0.018***	0.017***	0.017***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Neolithic Transition Timing					0.061***	0.058***	0.055***
					(0.005)	(0.005)	(0.005)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Wave FE	No	No	No	Yes	Yes	Yes	Yes
Individual Controls	No	No	No	No	No	Yes	Yes
Adjusted-R^2	0.02	0.02	0.03	0.03	0.03	0.04	0.04
Observations	130933	130933	130933	130933	130933	130933	130933

Individual Level Analysis (WVS)

	Preferred Job Characteristic: Security vs Others						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.060***	– 0.063***	– 0.049***	– 0.031***	– 0.031***	– 0.031***	
	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	
Temperature (Spatial Correlation)	0.013***	0.014***	0.016***	0.021***	0.020***	0.017***	
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	
Temperature (Volatility, Ancestral)							– 0.023***
							(0.007)
Temp (Spatial Correlation, Ancestral)							0.010***
							(0.004)
Temperature (Mean)	-0.016***	-0.010	0.008	0.043***	0.050***	0.046***	0.047***
	(0.005)	(0.007)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)
Absolute Latitude		0.010	0.011	0.041***	0.074***	0.069***	0.059***
		(0.007)	(0.010)	(0.011)	(0.012)	(0.011)	(0.011)
Elevation (Mean)	-0.023***	-0.021***	0.013***	0.024***	0.014***	0.010**	0.009*
	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)
Land Suitability (Mean)			0.028***	0.042***	0.018***	0.017***	0.017***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Neolithic Transition Timing					0.061***	0.058***	0.055***
					(0.005)	(0.005)	(0.005)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Wave FE	No	No	No	Yes	Yes	Yes	Yes
Individual Controls	No	No	No	No	No	Yes	Yes
Adjusted-R^2	0.02	0.02	0.03	0.03	0.03	0.04	0.04
Observations	130933	130933	130933	130933	130933	130933	130933

Concluding Remarks

- The evolution of loss aversion in the course of human history reflects the adaptation of humans to the asymmetric effects of climatic shocks on reproductive success during the Malthusian epoch

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- Individuals and ethnic groups that are originated in regions that were characterized by:
  - Greater climatic **volatility** have a **lower** degree of loss aversion in the contemporary period
  - Higher **spatial correlation** of climatic shocks have **higher** degree of loss aversion in the contemporary period

Related Literature

- Evolution of preferences in the course of human history, Galor and Moav (QJE 2002), Doepke and Zilibotti (QJE 2008), Galor and Michalopoulos (JET 2012), Galor and Ozak (AER 2016)

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- Biogeographical roots of comparative development, Diamond (1997), Ashraf and Galor (AER 2013), Spolaore and Wacziarg (JEL 2013)

Back

Empircal Motivation

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  - Bargaining strategy (Levy, 1996; Shalev, 2002)
  - War strategy (Jervis, 1992).

Back

Theoretical Representation of Loss Aversion

- Reflected by a kink in the utility function around a 'reference point'

  (Hardie, Johnson and Fader, 1993)

$$v(x) = \begin{cases} [u(x) - u(x_r)] & \text{if } x \geq x_r \\ \lambda [u(x) - u(x_r)] & \text{if } x < x_r \end{cases}$$

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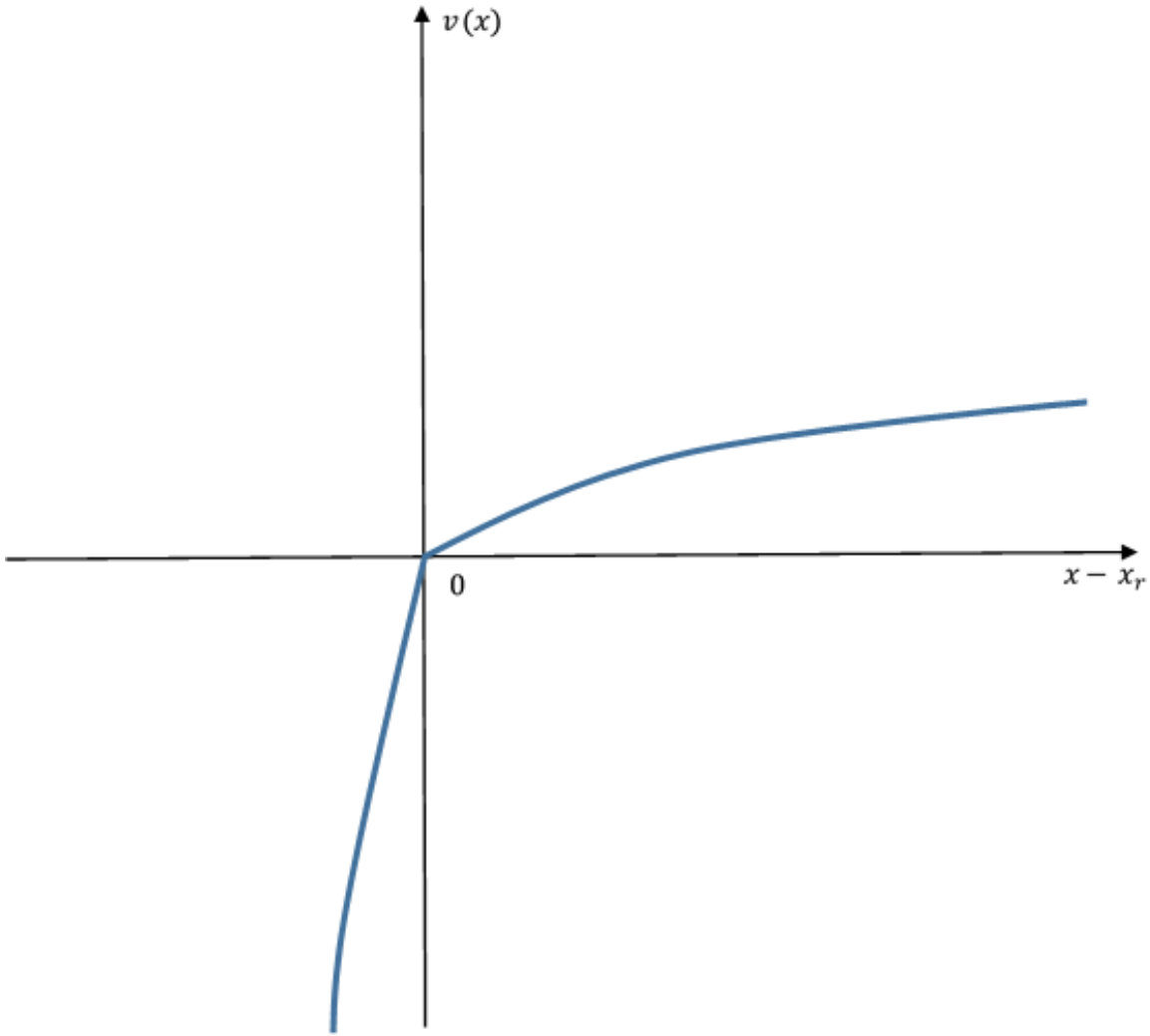
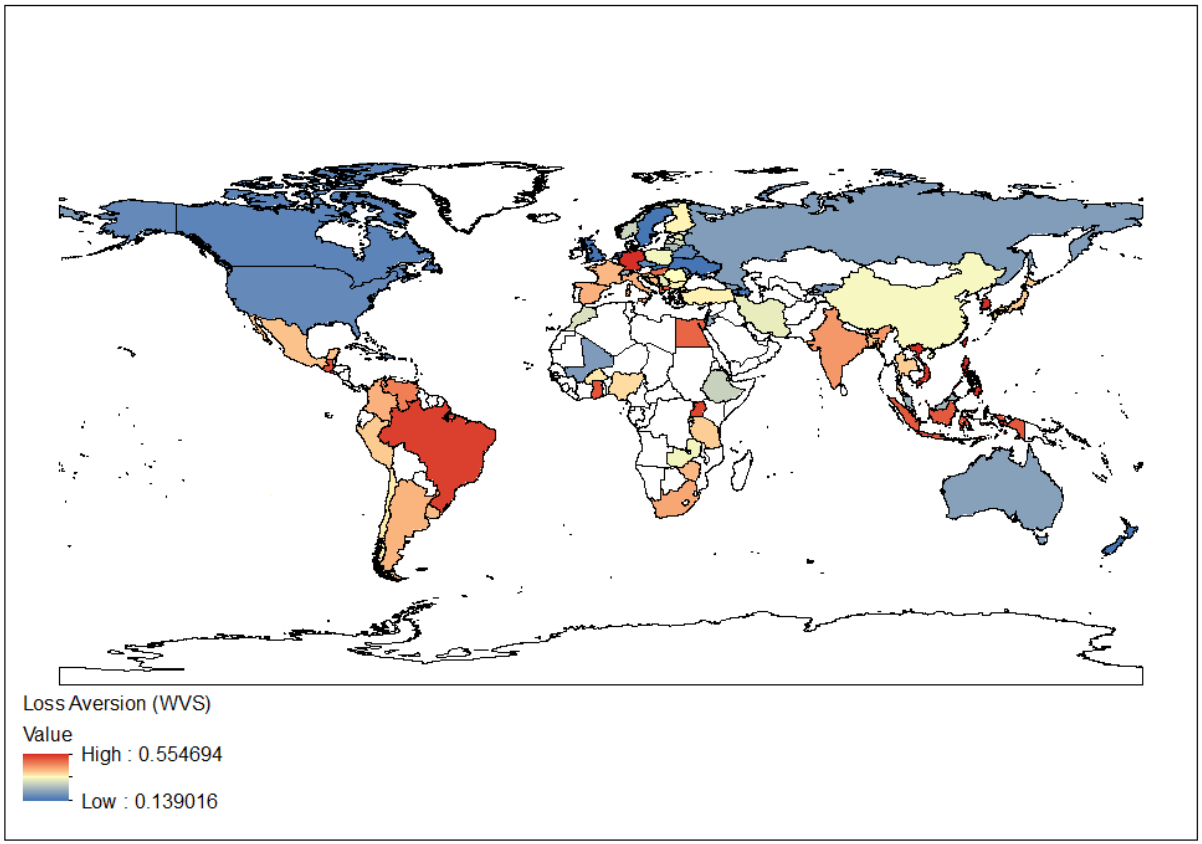
  - $x_r =$ reference point
  - $\lambda > 1$

Geometrical Representation of Loss Aversion



Back

Global Distribution of Loss Aversion: National Level



Back

Ordered Probit Estimation (ESS)

	Preferred job Characteristic: Security vs. Salary					
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.194***	– 0.279***	– 0.284***	– 0.292***	– 0.298***	– 0.286***
	(0.060)	(0.062)	(0.083)	(0.083)	(0.083)	(0.083)
Temperature (Spatial Correlation)	0.043*	0.068**	0.077***	0.074***	0.075***	0.075***
	(0.025)	(0.027)	(0.028)	(0.027)	(0.027)	(0.027)
Temperature (Mean)	-0.172***	-0.125*	-0.116	-0.160	-0.165	-0.095
	(0.055)	(0.066)	(0.122)	(0.125)	(0.122)	(0.125)
Absolute Latitude		0.111***	0.166**	0.134*	0.138*	0.195**
		(0.041)	(0.074)	(0.078)	(0.078)	(0.079)
Elevation (Mean)		-0.008	0.008	-0.003	-0.002	0.009
		(0.021)	(0.028)	(0.031)	(0.031)	(0.031)
Land Suitability (Mean)			0.031	0.017	0.015	0.013
			(0.055)	(0.060)	(0.061)	(0.060)
Neolithic Transition Timing				0.023	0.024	0.012
				(0.021)	(0.021)	(0.021)
Country of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes
Round FE	No	No	No	No	Yes	Yes
Individual Controls	No	No	No	No	No	Yes
Pseudo-R^2	0.03	0.03	0.03	0.03	0.03	0.04
Observations	3907	3907	3907	3907	3907	3907

Back

Ordered Probit Estimation (GSS)

	Preferred Job Characteristic						
	Security vs Others					Security vs Salary	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Temperature (Volatility)	– 0.152*	– 0.186**	– 0.333***	– 0.305***	– 0.438***	– 0.260***	– 0.343***
	(0.088)	(0.080)	(0.065)	(0.066)	(0.062)	(0.073)	(0.083)
Temperature (Spatial Correlation)	0.109**	0.135***	0.144***	0.162***	0.187***	0.137***	0.180***
	(0.048)	(0.052)	(0.049)	(0.058)	(0.048)	(0.047)	(0.052)
Temperature (Mean)	-0.041	-0.015	-0.067	0.023	-0.068	-0.063	0.091
	(0.071)	(0.138)	(0.083)	(0.087)	(0.167)	(0.102)	(0.162)
Absolute Latitude		0.040	0.089	0.143	0.213	0.190	0.318
		(0.119)	(0.133)	(0.135)	(0.223)	(0.144)	(0.203)
Elevation (Mean)		-0.040	-0.123	-0.038	-0.135	-0.086	-0.097
		(0.056)	(0.080)	(0.090)	(0.094)	(0.109)	(0.106)
Land Suitability (Mean)			-0.122	-0.070	-0.153**	-0.097	-0.151*
			(0.079)	(0.083)	(0.070)	(0.096)	(0.091)
Neolithic Transition Timing				-0.101*	-0.083	-0.056	-0.076
				(0.055)	(0.076)	(0.057)	(0.064)
Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes	Yes
Wave FE	No	No	No	No	Yes	No	Yes
Individual Controls	No	No	No	No	Yes	No	Yes
Pseudo-R^2	0.01	0.01	0.01	0.01	0.05	0.02	0.03
Observations	1328	1328	1328	1328	1171	1181	1171

Back

Selection by Unobservables

	Temperature Volatility, Spatial Correlation and Loss Aversion							
	(1) ESS	(2) ESS	(3) GSS	(4) GSS	(5) WVS	(6) WVS	(7) EA	(8) EA
Temperature (Volatility)	– 0.22***	– 0.23***	– 0.20*	– 0.42***	– 0.06***	– 0.03***	– 0.15***	– 0.08***
	(0.05)	(0.06)	(0.10)	(0.08)	(0.01)	(0.01)	(0.02)	(0.03)
Temperature (Spatial Correlation)	0.05**	0.06***	0.15**	0.16***	0.01***	0.02***	0.07***	0.05**
	(0.02)	(0.02)	(0.06)	(0.04)	(0.00)	(0.00)	(0.03)	(0.02)
Temperature (Mean)	-0.09*	-0.09	0.02	-0.03	-0.01	0.05***	0.01	-0.02
	(0.05)	(0.09)	(0.17)	(0.21)	(0.01)	(0.01)	(0.02)	(0.02)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
Additional Geographical Controls	No	Yes	No	Yes	No	Yes	No	Yes
Wave/Round FE	No	Yes	No	Yes	No	Yes	N/A	N/A
Individual/Ethnographic Controls	No	Yes	No	Yes	No	Yes	No	Yes
AET_v		-34.61		-1.90		0.98		1.13
δ_v		-5.18		-0.75		1.60		1.36
β_v^*		-0.24		-0.52		-0.01		-0.02
AET_c		-15.36		-16.72		-5.04		2.32
δ_c		-8.27		-27.29		-8.14		2.78
β_c^*		0.06		0.16		0.02		0.03
R^2	0.06	0.08	0.03	0.13	0.02	0.04	0.28	0.49
Adjusted-R^2	0.06	0.07	0.02	0.08	0.02	0.04	0.28	0.47
Observations	3907	3907	1171	1171	130933	130933	471	471

Back

Alternative Climatic Dimensions: Precipitation

	Population Density 1500					Urbanization
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.543***	– 0.538***	– 0.691***	– 1.012***	– 0.908***	– 0.854**
	(0.159)	(0.171)	(0.225)	(0.210)	(0.240)	(0.401)
Precipitation (Volatility)	0.215	0.199	0.234	0.292	0.213	0.218
	(0.185)	(0.217)	(0.248)	(0.224)	(0.195)	(0.344)
Temperature (Mean)	-0.235*	-0.214	-0.324	-0.741***	-0.833***	0.228
	(0.138)	(0.191)	(0.212)	(0.220)	(0.226)	(0.448)
Precipitation (Mean)	-0.166	-0.150	-0.175	-0.254	-0.212	-0.157
	(0.171)	(0.178)	(0.187)	(0.155)	(0.138)	(0.375)
Percentage of Arable Land	0.439***	0.435***	0.433***	0.396***	0.277***	0.068
	(0.079)	(0.109)	(0.113)	(0.102)	(0.103)	(0.148)
Absolute Latitude	0.410**	0.428**	0.458*	0.211	0.129	0.531
	(0.188)	(0.191)	(0.263)	(0.242)	(0.220)	(0.461)
Elevation (Mean)		0.013	-0.094	-0.312***	-0.364***	0.177
		(0.077)	(0.083)	(0.084)	(0.079)	(0.278)
Land Suitability (Mean)		0.010	-0.016	-0.012	0.070	-0.018
		(0.129)	(0.133)	(0.123)	(0.119)	(0.200)
Neolithic Transition Timing				0.406***	0.399***	-0.103
				(0.070)	(0.108)	(0.144)
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes
Region FE	No	No	No	No	Yes	Yes
Adjusted-R^2	0.32	0.31	0.32	0.42	0.44	0.21
Observations	151	151	151	151	151	81

Back

Alternative Climatic Dimensions: Precipitation

	Population Density 1500					Urbanization
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	– 0.543***	– 0.538***	– 0.691***	– 1.012***	– 0.908***	– 0.854**
	(0.159)	(0.171)	(0.225)	(0.210)	(0.240)	(0.401)
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Neolithic Transition Timing				0.406***	0.399***	-0.103
				(0.070)	(0.108)	(0.144)
Additional Geographical Controls	No	No	Yes	Yes	Yes	Yes
Region FE	No	No	No	No	Yes	Yes
Adjusted-R^2	0.32	0.31	0.32	0.42	0.44	0.21
Observations	151	151	151	151	151	81

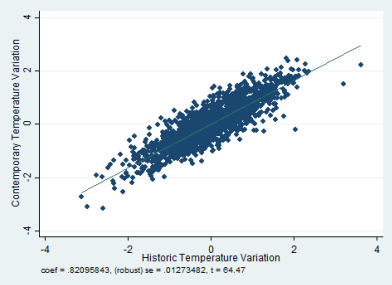
Back

Preindustrial Development

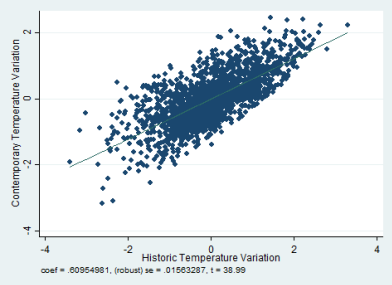
	Temperature Volatility, Spatial Correlation and Loss Aversion								
	ESS			GSS			WVS		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Temperature (Volatility)	-0.21***	-0.23***	-0.23**	-0.82***	-0.80***	-0.60***	-0.03***	-0.04***	-0.03***
	(0.06)	(0.06)	(0.09)	(0.21)	(0.20)	(0.18)	(0.01)	(0.01)	(0.01)
Temperature (Spatial Correlation)	0.05**	0.06**	0.08***	0.36***	0.39**	0.34***	0.02***	0.02***	0.02***
	(0.02)	(0.02)	(0.02)	(0.13)	(0.15)	(0.10)	(0.00)	(0.00)	(0.01)
Population Density (1500)	0.00			-0.00			0.00		
	(0.00)			(0.01)			(0.00)		
Urbanization Rate (1800)		0.15			0.48			-0.09**	
		(0.17)			(0.93)			(0.04)	
Income percapita (1913)			0.03			0.21			-0.03***
			(0.04)			(0.14)			(0.01)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Wave/Round FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.08	0.08	0.08	0.12	0.12	0.12	0.04	0.04	0.05
Adjusted-R^2	0.07	0.07	0.06	0.07	0.07	0.07	0.04	0.04	0.05
Observations	3907	3864	3061	1171	1171	1117	130933	125078	83350

Back

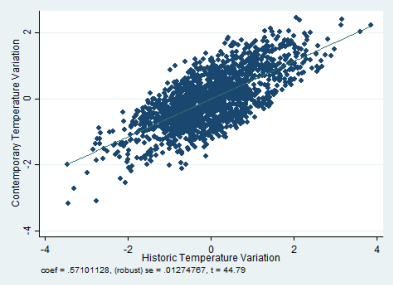
Stability of Temperature Volatility



(a) 1800-1900



(b) 1700-1800



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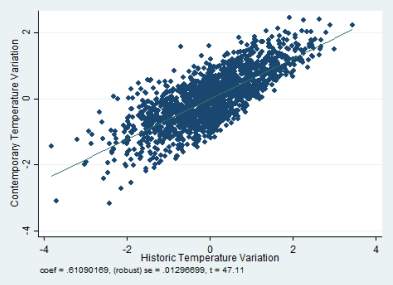

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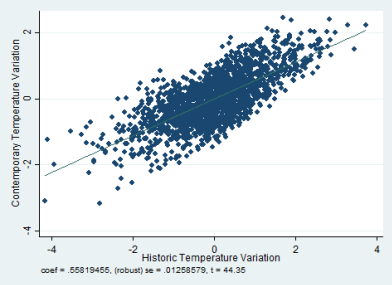
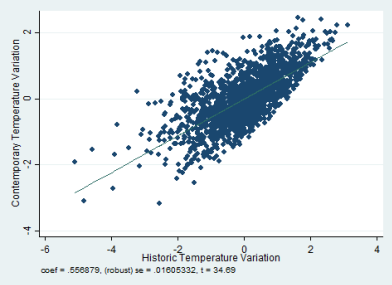


(e) 1400-1500



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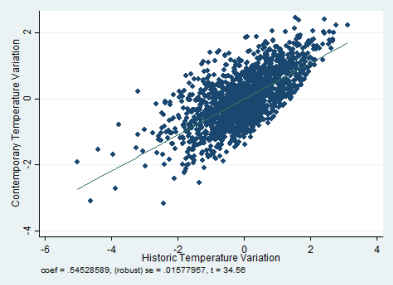

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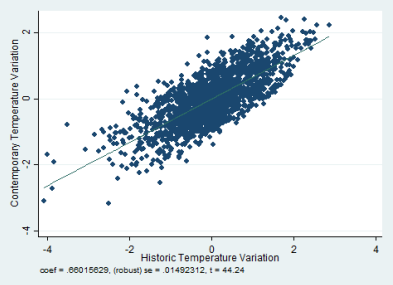

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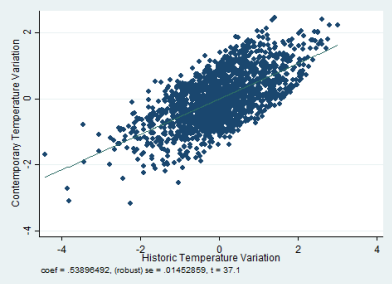

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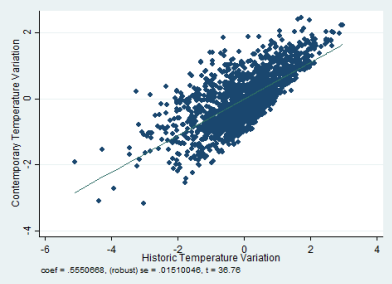
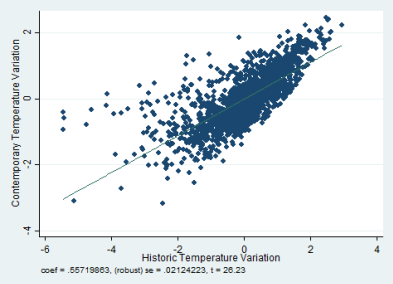
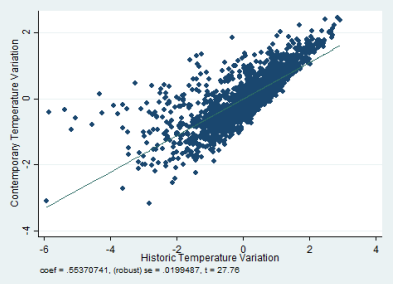


(j) 900-1000



(k) 800-900



(l) 700-800

Stability of Temperature Mean

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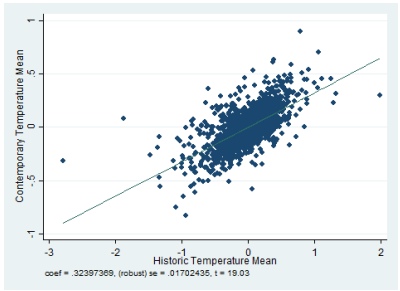
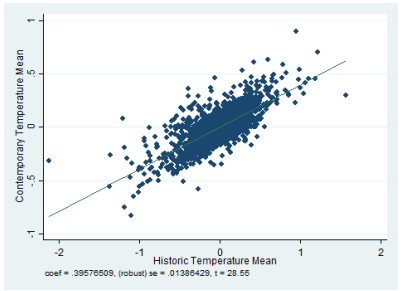
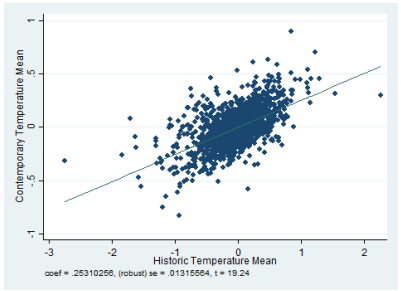


(a) 1800-1900



(b) 1700-1800



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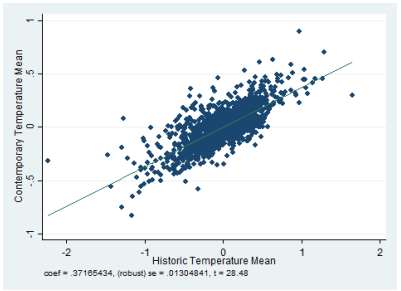
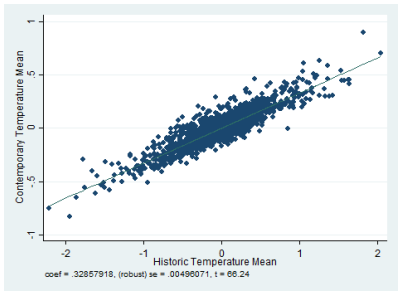
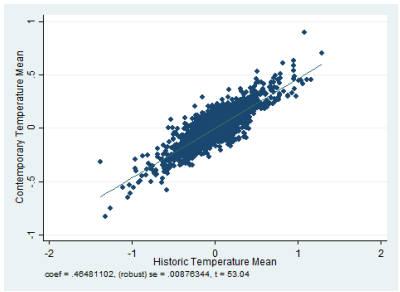


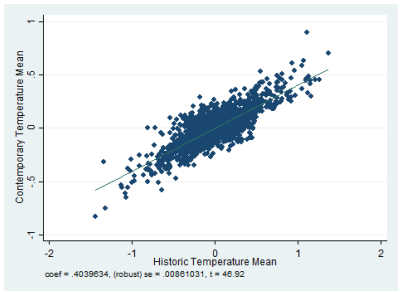
(d) 1500-1600



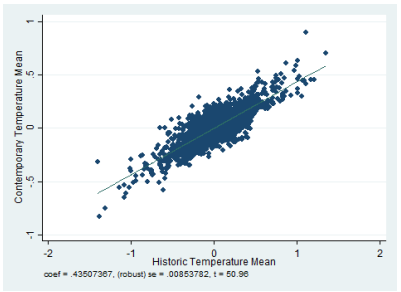
(e) 1400-1500



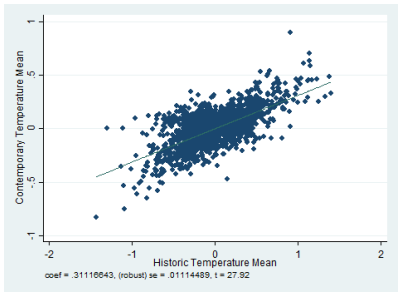
(f) 1300-1400

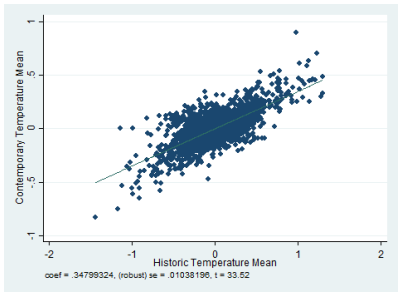


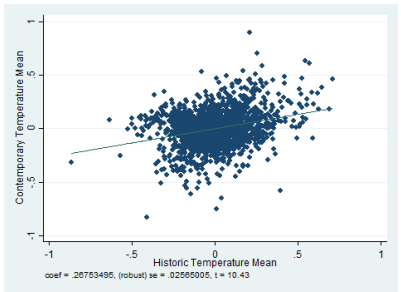
(g) 1200-1300

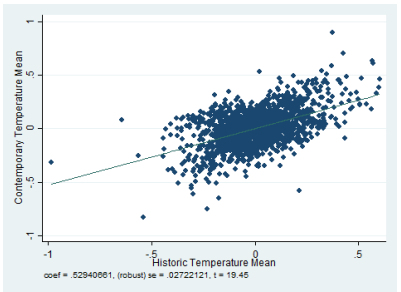


(h) 1100-1200









Variables Description (ESS)

- **LTO**: "Do you generally plan for your future or do you just take each day as it comes?"
- **Obedience**: "She/he believes that people should do what they're told. She/he thinks people should follow rules at all times, even when no-one is watching"
- **Altruism**: "It's very important to her/him to help the people around her/him. She/he wants to care for their well-being"
- **Equality**: "She/he thinks it is important that every person in the world should be treated equally. She/he believes everyone should have equal opportunities in life"
- **Gender**: "Should woman be prepared to cut down on her paid work for the sake of her family?"
- **Strong Government**: "It is important to her/him that the government ensures her/his safety against all threats. She/he wants the state to be strong so it can defend its citizens"
- **Tradition**: "Tradition is important to her/him. S/he tries to follow the customs handed down by her/his religion or her/his family"

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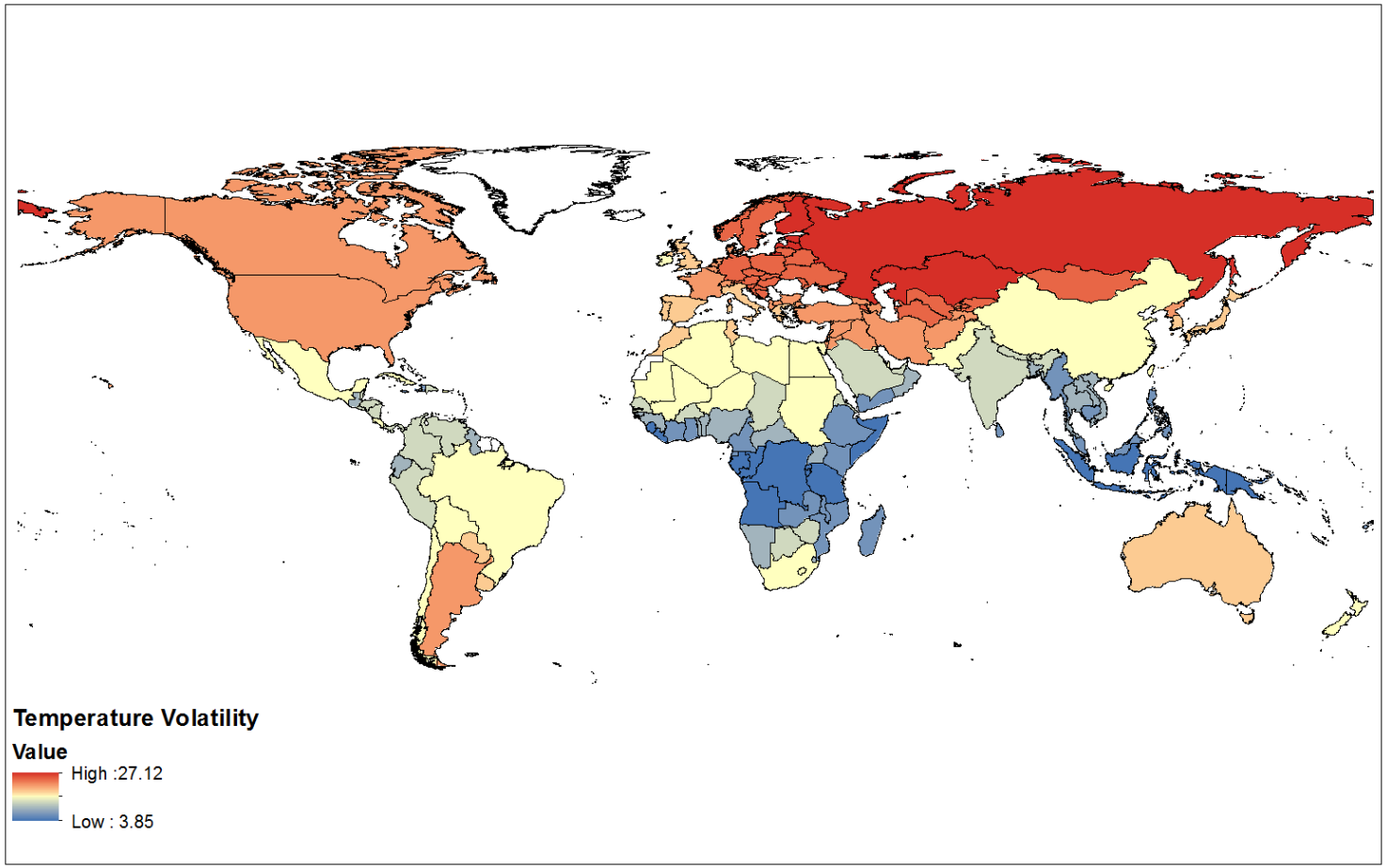
Global Distribution of Temperature Volatility



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Variables Description (GSS)

- **LTO**: "Do you smoke?"
- **Obedience and Altruism**: "If you had to choose, which thing on this list would you pick as the most important for a child to learn to prepare him or her for life?". Answers: "To Obey", "To help others"
- **Equality**: "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes. Do you agree or disagree?"
- **Gender**: "Do you approve or disapprove of a married woman earning money in business or industry if she has a husband capable of supporting her?"
- **Government**: "As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them? Executive branch of the federal government"

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General CRRA utility

$$u_i(c_{it}, n_{it}) = \begin{cases} (1-\gamma)\left[\frac{c_{it}^{1-\sigma_c}}{1-\sigma_c} - \frac{\tilde{c}^{1-\sigma_c}}{1-\sigma_c}\right] + \gamma\frac{(n_{it}+\epsilon)^{1-\sigma_n}}{1-\sigma_n} & \text{if } c_{it} \geq \tilde{c} \\ \frac{1}{\theta_i}(1-\gamma)\left[\frac{c_{it}^{1-\sigma_c}}{1-\sigma_c} - \frac{\tilde{c}^{1-\sigma_c}}{1-\sigma_c}\right] + \gamma\frac{(n_{it}+\epsilon)^{1-\sigma_n}}{1-\sigma_n} & \text{if } c_{it} < \tilde{c} \end{cases}$$

- σ_c – degree of Relative Risk Aversion wrt consumption
- σ_n – degree of Relative Risk Aversion wrt fertility

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Robustness to the Weather Stations Density

	ESS		GSS			
	Security v Salary		Job Security		Security v Salary	
	(1)	(2)	(3)	(4)	(5)	(6)
Temperature (Volatility)	-0.264***	-0.260***	-0.321***	-0.461***	-0.404***	-0.513***
	(0.066)	(0.065)	(0.083)	(0.070)	(0.135)	(0.156)
Temperature (Spatial Correlation)	0.075***	0.074***	0.175**	0.194***	0.232***	0.240***
	(0.023)	(0.023)	(0.069)	(0.042)	(0.067)	(0.062)
Temperature (Mean)	-0.171**	-0.132	0.041	-0.019	-0.155	-0.298
	(0.077)	(0.080)	(0.107)	(0.151)	(0.175)	(0.264)
Density of Weather Stations	0.008	0.006	0.069	0.044	0.099	0.012
	(0.015)	(0.015)	(0.048)	(0.054)	(0.086)	(0.108)
Absolute Latitude	0.072	0.107	0.207	0.185	0.255	0.092
	(0.078)	(0.080)	(0.221)	(0.201)	(0.331)	(0.372)
Elevation (Mean)	-0.027	-0.026	0.003	-0.155*	-0.148	-0.295*
	(0.022)	(0.022)	(0.106)	(0.082)	(0.177)	(0.167)
Land Suitability (Mean)	0.026	0.023	-0.085	-0.152*	-0.095	-0.192
	(0.050)	(0.050)	(0.099)	(0.078)	(0.150)	(0.164)
Neolithic Transition Timing	0.018	0.012	-0.152*	-0.073	-0.106	-0.046
	(0.015)	(0.015)	(0.079)	(0.063)	(0.105)	(0.094)
Country/Region of Birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional Geographical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Round/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	No	Yes	No	Yes	No	Yes
Adjusted-R^2	0.06	0.07	0.02	0.09	0.04	0.07
Observations	3907	3907	1166	1166	1166	1166

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Optimization

- As long as the subsistence constraint is binding

$$[c_{it}, n_{it}] = \begin{cases} [y_{it}, 0] & \text{if} \quad y_{it} \in [0; \tilde{c}] \\ \\ [\tilde{c}, \frac{y_{it} - \tilde{c}}{\rho y_{it}}] & \text{if} \quad y_{it} \in (\tilde{c}; y^h] \end{cases}$$

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
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Choice of Production Mode

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  - Increases in θ_i (degree of loss neutrality)

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
- Expected utility from risky production: $u^r_{it} = u^r(\theta_i, \Delta)$
  - Increases in θ_i (degree of loss neutrality)
  - Decreases in Δ (volatility)

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
- Expected utility from risky production: $u^r_{it} = u^r(\theta_i, \Delta)$
  - Increases in θ_i (degree of loss neutrality)
  - Decreases in Δ (volatility)
- $\rightarrow$ There exists $\hat{\theta}$ such that: $u^r(\hat{\theta}, \Delta) = u^s$

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
- Expected utility from risky production: $u^r_{it} = u^r(\theta_i, \Delta)$
  - Increases in θ_i (degree of loss neutrality)
  - Decreases in Δ (volatility)
- $\rightarrow$ There exists $\hat{\theta}$ such that: $u^r(\hat{\theta}, \Delta) = u^s$
  - If $\theta_i \in (0; \hat{\theta}]$, individuals choose the safe mode

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
- Expected utility from risky production: $u^r_{it} = u^r(\theta_i, \Delta)$
  - Increases in θ_i (degree of loss neutrality)
  - Decreases in Δ (volatility)
- $\rightarrow$ There exists $\hat{\theta}$ such that: $u^r(\hat{\theta}, \Delta) = u^s$
  - If $\theta_i \in (0; \hat{\theta}]$, individuals choose the safe mode
  - If $\theta_i \in (\hat{\theta}; 1]$, individuals choose the risky mode

Choice of Production Mode

- Expected utility from safe production: $u^s_{it} = u^s$
- Expected utility from risky production: $u^r_{it} = u^r(\theta_i, \Delta)$
  - Increases in θ_i (degree of loss neutrality)
  - Decreases in Δ (volatility)
- $\rightarrow$ There exists $\hat{\theta}$ such that: $u^r(\hat{\theta}, \Delta) = u^s$
  - If $\theta_i \in (0; \hat{\theta}]$, individuals choose the safe mode
  - If $\theta_i \in (\hat{\theta}; 1]$, individuals choose the risky mode
    - Higher volatility reduces the profitability of the risky mode

$$d\hat{\theta} / d\Delta > 0$$

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