

Online Appendices for “The Economics of Nationalism” (Xiaohuan Lan and Ben Li)

A. Derivation of inequalities (9) and (10)

Consider Home without loss of generality. Denote globalized and unglobalized by g and ng , respectively. The sales by an unglobalized region in Home (Hng) to a globalized Home region (Hg), to another unglobalized Home region (Hng), to a globalized Foreign region (Fg), and to an unglobalized Foreign region (Fng) stay the same as before, namely,

$$\begin{aligned} X_{Hg,Hng} &= \frac{K}{S_H + S_F \theta}, \\ X_{Hng,Hng} &= \frac{K}{S_H + S_F \theta}, \\ X_{Fg,Hng} &= \frac{\theta K}{S_H + S_F \theta}, \\ X_{Fng,Hng} &= \frac{\theta K}{S_H + S_F \theta}. \end{aligned}$$

In comparison, the sales of a globalized region in Home to the four destinations are

$$\begin{aligned} X_{Hg,Hg} &= \frac{K}{S_H + S_F [\kappa \tilde{\theta} + (1 - \kappa) \theta]} < X_{Hg,Hng}, \\ X_{Hng,Hg} &= \frac{K}{S_H + S_F [\kappa \tilde{\theta} + (1 - \kappa) \theta]} < X_{Hng,Hng}, \\ X_{Fg,Hg} &= \frac{\tilde{\theta} K}{S_H + S_F [\kappa \tilde{\theta} + (1 - \kappa) \theta]} > X_{Fg,Hng}, \\ X_{Fng,Hg} &= \frac{\theta K}{S_H + S_F [\kappa \tilde{\theta} + (1 - \kappa) \theta]} < X_{Fng,Hng}. \end{aligned}$$

B. Derivations of equation (11)

The output of an unglobalized region is

$$Y_{ng} = \kappa S_H \left(\frac{K}{S_H + S_F[\kappa\tilde{\theta} + (1-\kappa)\theta]} \right)^\alpha + (1-\kappa)S_H \left(\frac{K}{S_H + S_F\theta} \right)^\alpha, \\ + \kappa S_F \theta \left(\frac{K}{S_F + S_H[\kappa\tilde{\theta} + (1-\kappa)\theta]} \right)^\alpha + (1-\kappa)S_F \theta \left(\frac{K}{S_F + S_H\theta} \right)^\alpha,$$

while the output of a globalized region is

$$Y_g = \kappa S_H \left(\frac{K}{S_H + S_F[\kappa\tilde{\theta} + (1-\kappa)\theta]} \right)^\alpha + (1-\kappa)S_H \left(\frac{K}{S_H + S_F\theta} \right)^\alpha \\ + \kappa S_F \tilde{\theta} \left(\frac{K}{S_F + S_H[\kappa\tilde{\theta} + (1-\kappa)\theta]} \right)^\alpha + (1-\kappa)S_F \theta \left(\frac{K}{S_F + S_H\theta} \right)^\alpha.$$

The difference between Y_{ng} and Y_g is the third term on their right sides.

C. Gravity in our setup and gravity-based economic openness

Below, we first derive a gravity equation from our model in Section I, and then derive *EconOpen* from the gravity equation.

1. Gravity equation derived from our model

For the moment, ignore the h part in equation (7) and focus on the utility from consumption. With $C = Y$ inserted, the utility function can be considered as one with constant elasticity of substitution. A gravity equation refers to the fact that, without loss of generality, exports from a Home region i to a Foreign region k equals

$$X_{k,i} = \frac{K_k K_i}{\sum_l K_l} \left(\frac{\check{\theta}_{k,i}}{\check{\Delta}_i \check{\Delta}_k} \right). \quad (15)$$

Notice that K_l refers to the value, rather than quantity, of tradables in region l . By

equations (4)-(5), we have

$$X_{k,i} = \frac{\check{\theta}_{k,i}}{\check{\Delta}_i} K_i;$$

thus, deriving equation (15) is equivalent to proving

$$K_k = \check{\Delta}_k \sum_l K_l. \quad (16)$$

Define $s_k \equiv K_k / \sum_l K_l$. Proving (16) is now equivalent to proving $s_k = \check{\Delta}_k$.

We now prove $s_k = \check{\Delta}_k$ by demonstrating that it holds if and only if region k 's accounting identity (balance of payment) holds. The value of region k 's exported tradable is

$$\sum_l \frac{\check{\theta}_{l,k}}{\check{\Delta}_k} K_k = \sum_l \frac{\check{\theta}_{l,k}}{\check{\Delta}_k} K_k \frac{s_l}{\check{\Delta}_l} = \sum_l \frac{\check{\theta}_{l,k} K_l K_k}{\check{\Delta}_k \check{\Delta}_l \sum_l K_l} = \sum_l \frac{\check{\theta}_{l,k} s_k K_l}{\check{\Delta}_k \check{\Delta}_l} = \sum_l \frac{\check{\theta}_{l,k} K_l}{\check{\Delta}_l}.$$

Recall that $\check{\theta}_{lk}$ is symmetric between l and k . Therefore, the above $\sum_l \frac{\check{\theta}_{l,k} K_l}{\check{\Delta}_l} = \sum_l \frac{\check{\theta}_{k,l} K_l}{\check{\Delta}_l} = K_k$, which equals the value of region k 's imported tradables. The identity is established. Since every step is reversible, the “if and only if” relation is also established. This finishes the proof.

It is noteworthy that the export- and import-side multilateral resistance terms in equation (15) correspond to their import- and export-side counterparts in the gravity equation of Anderson and van Wincoop (2003). This is because the substitution among varieties in their paper occurs on the import-side, while our model, following Alesina et al., (2000) lets the substitution occur on the export-side. This difference is only a matter of interpretation, as the gravity equation is symmetric.

2. Derivation of *EconOpen* from the gravity equation

According to the above gravity equation (15), $EconOpen_i \equiv \frac{IM_i + EX_i}{Y_i}$ equals

$$\frac{\sum_k X_{k,i} + \sum_k X_{i,k}}{Y_i} = \frac{2}{Y_i} \sum_{k \in F} \frac{K_k K_i}{\sum_l K_l} \left(\frac{\check{\theta}_{k,i}}{\check{\Delta}_i \check{\Delta}_k} \right). \quad (17)$$

With equation (16) inserted, we obtain

$$EconOpen_i = \frac{2}{Y_i} \sum_{k \in F} \left(\frac{\check{\theta}_{k,i}}{\check{\Delta}_i} \right) K_i = 2 \sum_{k \in F} \left(\frac{\check{\theta}_{k,i}}{\check{\Delta}_i} \right).$$

This is the same as the $EconOpen_i$ derived in text through equation (13).

D. Cross-region nationalism average and the intensity of globalization

Since losses from decreased domestic trade are equal between globalized and unglobalized regions, the nationalism of globalized regions relative to unglobalized regions is decreasing in their relative gain from increased foreign trade:

$$\frac{|S_F \tilde{\theta} \left(\frac{K}{S_F + S_H [\kappa \tilde{\theta} + (1 - \kappa) \theta]} \right)^\alpha - S_F \theta \left(\frac{K}{S_H + S_F \theta} \right)^\alpha|}{|S \theta \left(\frac{K}{S_F + S_H [\kappa \tilde{\theta} + (1 - \kappa) \theta]} \right)^\alpha - S_F \theta \left(\frac{K}{S_H + S_F \theta} \right)^\alpha|} > 1. \quad (18)$$

The numerator and denominator in expression (18) correspond to globalized and unglobalized regions, respectively. In either of them, the first (second) term is linked to the post-(pre-) globalization period. Since $\tilde{\theta} > \theta$, the ratio is greater than 1. Clearly, if globalization is more intense, the ratio will be even greater than 1, as the numerator increases but the denominator stays the same. This will reduce the weighted average of region-level nationalism in the country.

E. A Sample Report from the CPoC

Your Evaluation Results:

Political Coordinate: 0.1; Cultural Coordinate: -0.4; Economic Coordinate: 0.1

All coordinates are within range [-2,2].

Political Coordinate: authoritarianism vs. libertarianism (positive value refers to libertarianism, zero means neutral)

Cultural Coordinate: conservatism vs. liberalism (positive value refers to liberalism, zero means neutral)

Economic Coordinate: collectivism vs. neoliberalism (positive value refers to neoliberalism, zero means neutral)

Notes: The above sample report indicates that this participant leans towards libertarianism (slightly), conservatism (moderately), and neoliberalism (slightly). The CPoC also provides the following histograms of evaluation results from all participants, for the convenience of self-evaluation.

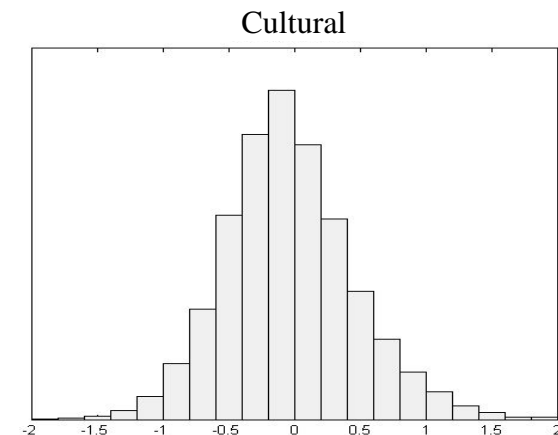
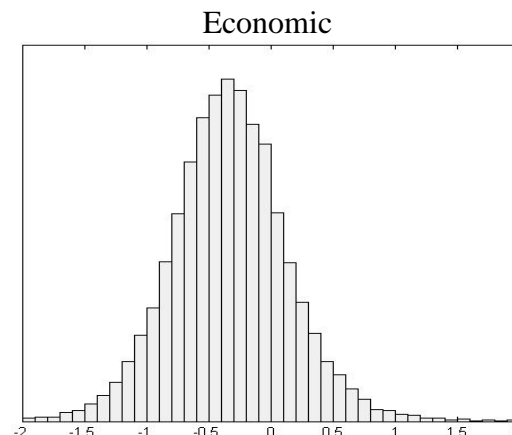
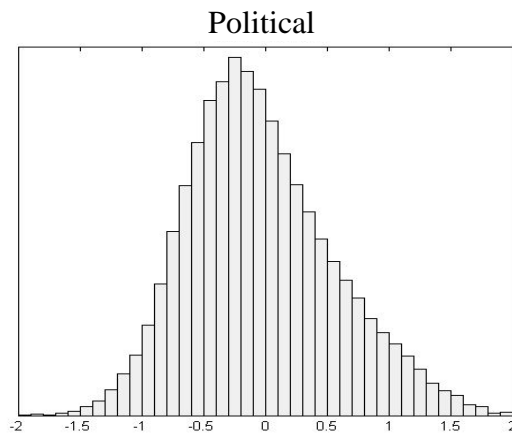
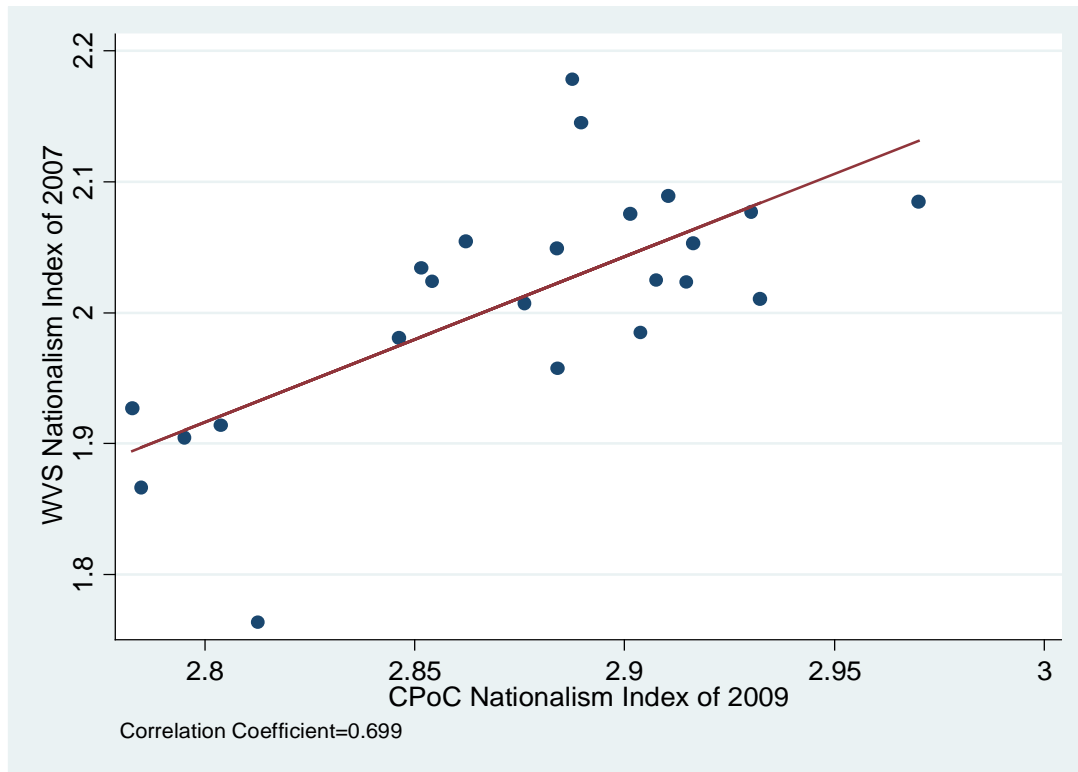


Figure A1: Nationalism, the CPoC index versus the WVS index



Note: To make the two indices comparable, both the WVS index and the CPoC index are averaged to the province level.

Table A1: Principal Component Analysis of the CPoC and the WVS Responses

Panel A: The CPoC Responses to [N1]-[N4] Number of Observations =54,602					
Principal Component Factors			Factor Loading		
	(1)	(2)		(3)	(4)
	Eigenvalue	(%) total variance		Factor 1	(%) Uniqueness
Factor 1	1.976	49.4	N1	0.775	40.0
Factor 2	0.769	19.2	N2	0.649	57.9
Factor 3	0.686	17.1	N3	0.678	54.1
Factor 4	0.569	14.2	N4	0.704	50.4

Panel B: The WVS Responses to [N1']-[N3'] Number of Observations =2,038					
Principal Component Factors			Factor Loading		
	(1)	(2)		(3)	(4)
	Eigenvalue	(%) total variance		Factor 1	(%) Uniqueness
Factor 1	1.306	43.5	N1'	0.659	56.7
Factor 2	0.904	30.2	N2'	0.726	47.3
Factor 3	0.790	26.3	N3'	0.587	65.6

Notes: The principal component analysis pinpoints the latent information dimensions of multiple variables (here, ratings of multiple statements related to nationalism) by decomposing the covariance matrix of the variables. Take Panel A for example. The four variables, responses to [N1]-[N4], are transformed into four orthogonal and normalized factors (Factors 1-4) using a transformation matrix. The transformation matrix is specified to ensure that (i) Factor k accounts for the k-th maximum of the variance in the covariance matrix; and (ii) each factor is scaled such that its variance equals to the share of the total variance in the variables (i.e., column (2)). It consists of the normalized eigenvectors of the correlation matrix (the corresponding eigenvalues are reported in column (1)). Simply put, the eigenvalue of factor k reflects the variance in all the four variables that is accounted for by factor k. Factors with an eigenvalue smaller than one is dropped (the Kaiser criterion). Column (1) in Panel A suggests that only one dimension of information, or one index, can be singled out of the four variables. Column (3) reports the correlation coefficients between the singled out factor (Factor 1) and the four ratings, and column (4) reports the variation in a given statement rating that cannot be explained by the common Factor 1. In this case, each rating has unique variations.

In summary, Panel A reveals that there is only one common factor shared by the four ratings, though each of the four contains additional information. Panel B on the three WVS ratings can be interpreted in the same fashion, which reaches a similar conclusion as Panel A.

Table A2: Profiles of Chinese Internet Users and the General Population (2010)

	Internet Users	General Population
Population (million)	384	1335
Gender Ratio (female=100)	118.3	105.9
Urban Residents (%)	72.2	46.6
Age Distribution (%)		
Age 10-19	31.8	13.5
Age 20-29	28.6	14
Age 30-39	21.5	15.9
Age 40-49	10.7	17.8
Education Distribution (%)		
Elementary school and below	8.8	37.2
Middle school	26.8	41.7
High school	40.2	13.8
College and above	24.3	7.3

Source: Data on internet users are from the *Statistical Survey Report on Internet Development in China* (China Internet Network Information Center, 2010). Data on general population are from the *China Statistical Yearbook 2010* (NBSC, 2010).

Table A3: Sample Selection and Nationalism across Cities

VARIABLES	(1)	(2)	(3)	(4)	(5)
The nationalism index	0.228 (0.583)	0.266 (0.563)	0.275 (0.586)	0.273 (0.561)	0.260 (0.549)
log (GDP per capita, GDPPC)		0.089 (0.071)		-0.008 (0.099)	-0.006 (0.097)
Share of rural population			-0.470*** (0.135)	-0.482** (0.219)	-0.478** (0.216)
Constant	-0.289 (1.662)	-1.290 (1.129)	-0.107 (1.645)	-0.011 (0.758)	-0.001 (0.748)
Observations	200	200	200	200	200

Robust standard errors in parentheses. *** p<0.01, ** p<0.05.

Notes: The dependent variable in columns (1)-(4) is (number of the CPoC participants in the city)/(number of internet accounts in the city). Considering that some people may use dial-up landlines or mobile phones to access the internet, the dependent variable in column (5) is (number of CPoC participants in the city)/(number of internet accounts+number of landlines and mobile phones in the city).

Source: Chinese Political Compass and China Data Center.

Table A4: Using Standard Deviation of Nationalism as Dependent Variable

	(1)	(2)	(3)
	OLS	2SLS	2SLS
<i>EconOpen</i>	0.036	0.187*	0.134
	(0.033)	(0.111)	(0.118)
Instrumental variable	NA	<i>MPI</i>	<i>MP2</i>

Robust standard errors in parentheses. *p<0.1.

Notes: The dependent variable is the standard deviation of the individual-level nationalism index in each Chinese city (see Section 4.2 for details). *EconOpen* is the measure of economic openness, constructed using (exports+imports)/GDP. The specifications in this table are the same as that in column (4) of Table 4. The number of observations is 200 in all regressions.

Source: Chinese Political Compass, China Data Center, Penn World Table, and China Customs Statistics Information Service.

Table A5: Localism relative to Globalism and Economic Openness across 43 Countries (year 2007)

	localism relative to globalism
<i>EconOpen</i>	0.422*** (0.127)
log(GDP per capita)	-0.026 (0.029)
Age	0.004*** (0.001)
Female	0.008 (0.014)
Marital status (married at least once=1)	0.076*** (0.027)
Education and Income dummies†	YES
Observations	47,575

Standard errors in parentheses, clustered at country level. *** p<0.01.

Notes: “Globalism” is the response to the statement “I see myself as a world citizen”, and “localism” is the response to the statement “I see myself as member of my local community”. Survey participants rate the two statements with “strongly agree,” “agree,” “disagree,” and “strongly disagree,” respectively coded as 4, 3, 2, 1. “Localism relative to globalism” is measured by localism minus globalism. A higher value of this relative term suggests a higher localism relative to globalism.

† Education has three levels, low, middle and high, measured by two dummies. Income has ten levels, measured by nine dummies.

Source: World Value Survey and Penn World Table.