**Supplementary Materials**

# Blood is Thicker Than Water:
## Elite Kinship Networks and State Building in Imperial China

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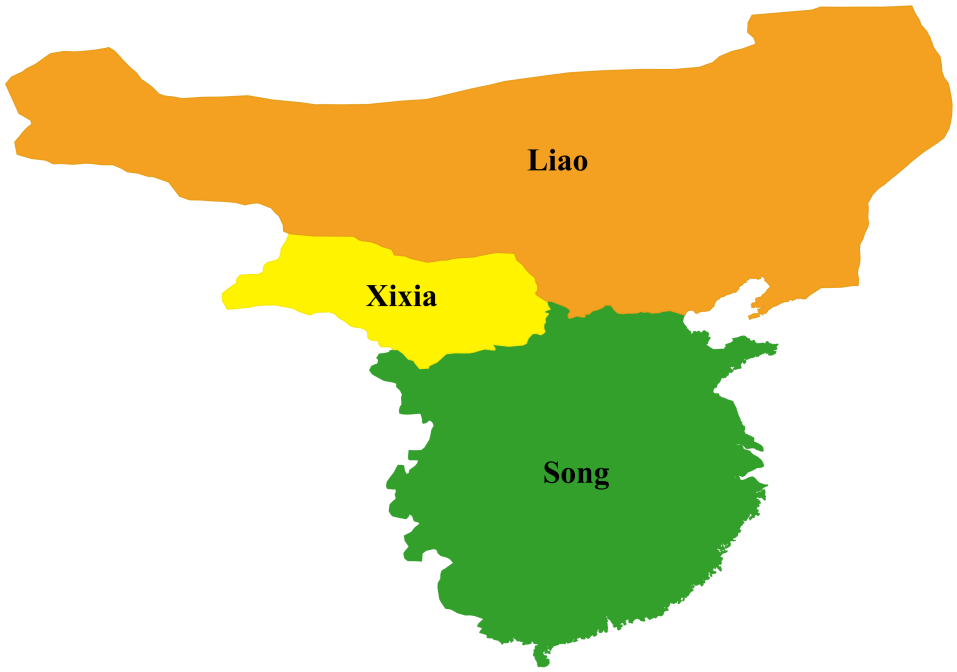


Figure A1-1: Northern Song Borders, 960–1127 CE

*Notes:* This figure shows the three regimes in China between 960 and 1127 based on CHGIS (2018).

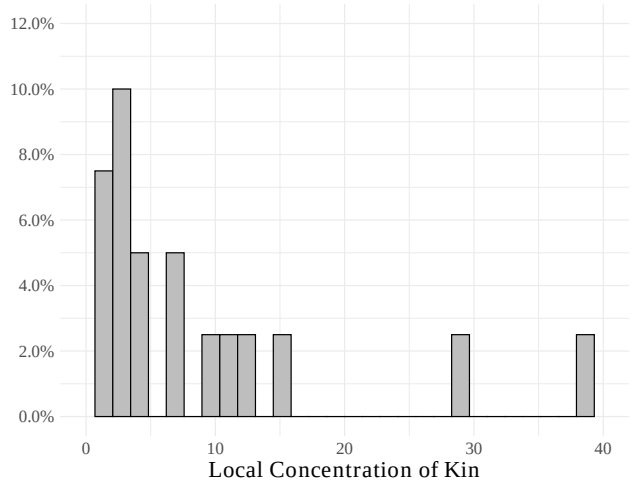


Figure A1-2: Major Politicians' Local Concentration of Kin (Estimating Sample)

*Notes*: The figure shows the histogram of politicians' local concentration of kin index. Only the 40 politicians in the estimating sample are included.

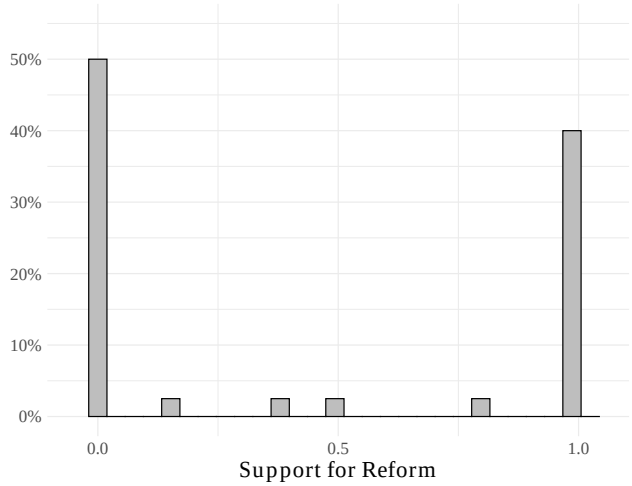


Figure A1-3: Major Politicians' Attitudes toward the State-Building Reform (Estimating Sample)

*Notes*: The figure shows the histogram of politicians' policy attitudes toward the state-building reform (1 = support; 0 = oppose; non-integer = mean of mixed attitudes). Only the 40 politicians in the estimating sample are included.

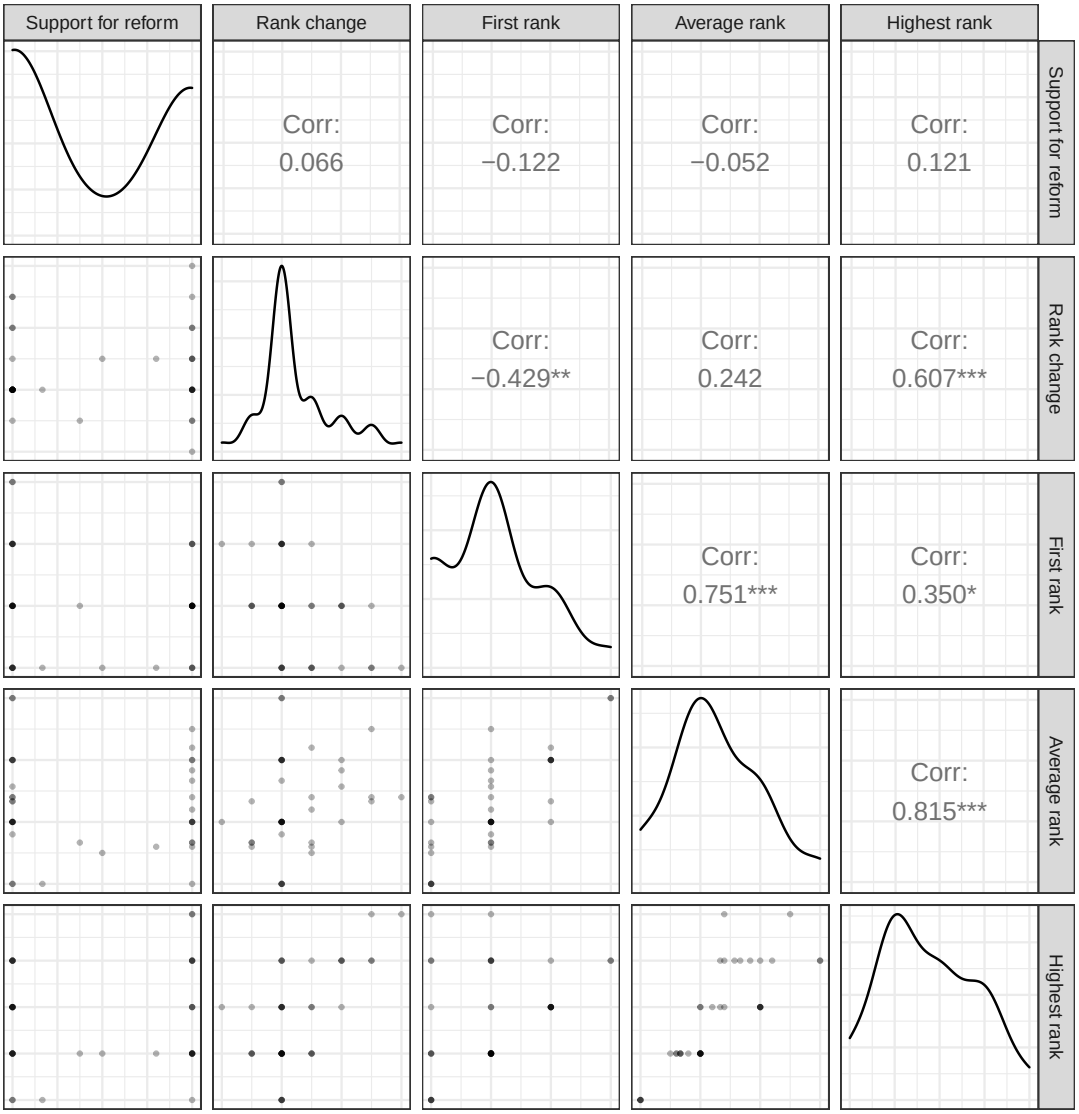


Figure A1-4: Correlations between Major Politicians' Attitudes toward the State-Building Reform and Their Political Ranks

*Notes*: The figure shows the correlations between major politicians' attitudes toward the state-building reform and their rank changes (the rank of an official's last position - his first), first ranks (rank of the first position), average ranks (mean rank of all positions), and highest ranks. Rank ranges from 1 to 6, with higher numbers indicating higher ranks. Only the 40 politicians in the estimating sample are included.

Table A1-1: Summary Statistics (Whole Sample)

| | N | Mean | Std Dev | Min | Max |
|---|---|---|---|---|---|
| Support for reform (continuous) | 63 | 0.574 | 0.482 | 0.000 | 1.000 |
| Support for reform (trichotomous) | 137 | 0.036 | 0.680 | −1.000 | 1.000 |
| Support for reform (dichotomous) | 63 | 0.540 | 0.502 | 0.000 | 1.000 |
| Local concentration of kin | 68 | 3.336 | 6.686 | 0.001 | 38.334 |
| Local concentration of kin/N of children | 68 | 2.109 | 4.149 | 0.001 | 18.006 |
| Local concentration of kin (politician) | 59 | 1.982 | 3.371 | 0.001 | 15.106 |
| Local concentration of kin (relational distance discount) | 68 | 0.607 | 1.184 | 0.000 | 6.252 |
| Herfindahl index of kin concentration (county) | 68 | 0.200 | 0.222 | 0.034 | 1.000 |
| Herfindahl index of kin concentration (prefecture) | 68 | 0.231 | 0.222 | 0.059 | 1.000 |
| Herfindahl index of kin concentration (province) | 68 | 0.298 | 0.235 | 0.098 | 1.000 |
| Local concentration of kin (matrilineal discount 0.1) | 68 | 1.572 | 4.699 | 0.000 | 35.514 |
| Local concentration of kin (matrilineal discount 0.2) | 68 | 1.768 | 4.755 | 0.000 | 35.827 |
| Local concentration of kin (matrilineal discount 0.3) | 68 | 1.964 | 4.862 | 0.001 | 36.140 |
| Local concentration of kin (matrilineal discount 0.4) | 68 | 2.160 | 5.017 | 0.001 | 36.454 |
| Local concentration of kin (matrilineal discount 0.5) | 68 | 2.356 | 5.214 | 0.001 | 36.767 |
| Local concentration of kin (matrilineal discount 0.6) | 68 | 2.552 | 5.450 | 0.001 | 37.080 |
| Local concentration of kin (matrilineal discount 0.7) | 68 | 2.748 | 5.719 | 0.001 | 37.394 |
| Local concentration of kin (matrilineal discount 0.8) | 68 | 2.944 | 6.018 | 0.001 | 37.707 |
| Local concentration of kin (matrilineal discount 0.9) | 68 | 3.140 | 6.341 | 0.001 | 38.020 |
| Politician rank change | 137 | 0.255 | 0.900 | −2.000 | 4.000 |
| Betweenness centrality | 137 | 25.664 | 55.796 | 0.000 | 443.731 |
| Degree centrality | 137 | 8.978 | 11.995 | 0.000 | 50.000 |
| Bonacich power | 137 | −0.016 | 1.004 | −4.570 | 2.780 |
| N of kin | 70 | 101.957 | 110.517 | 1.000 | 566.000 |
| N of children | 70 | 2.014 | 1.378 | 1.000 | 8.000 |
| N of children (groups) | 70 | 1.671 | 0.737 | 1.000 | 3.000 |
| Factional tie with reform leader | 137 | 0.204 | 0.405 | 0.000 | 1.000 |
| Politician's first rank | 137 | 1.847 | 0.695 | 1.000 | 4.000 |
| Politician's average rank | 137 | 1.963 | 0.686 | 1.000 | 4.000 |
| Politician's highest rank | 137 | 2.241 | 0.951 | 1.000 | 5.000 |
| Kin centroid exposure to external wars | 68 | 0.026 | 0.008 | 0.013 | 0.061 |
| Kin centroid exposure to mass rebellions | 68 | 0.062 | 0.015 | 0.033 | 0.112 |
| Kin exposure to external wars | 68 | 2.492 | 2.714 | 0.017 | 14.086 |
| Kin exposure to mass rebellions | 68 | 5.714 | 6.162 | 0.041 | 31.798 |
| Ruggedness Index | 117 | 77268.661 | 65227.410 | 6938.060 | 320378.719 |
| Father exam | 137 | 0.190 | 0.394 | 0.000 | 1.000 |
| Father migration | 137 | 17.371 | 84.333 | 0.000 | 767.121 |
| Father official status | 137 | 0.358 | 0.481 | 0.000 | 1.000 |
| Grandfather official status | 137 | 0.496 | 0.502 | 0.000 | 1.000 |
| Uncle official status | 137 | 0.190 | 0.394 | 0.000 | 1.000 |

*Notes:* This table shows the summary statistics of the whole sample. See text for variable descriptions and data sources.

Table A1-2: Summary Statistics (Estimating Sample)

| | N | Mean | Std Dev | Min | Max |
|---|---|---|---|---|---|
| Support for reform (continuous) | 40 | 0.446 | 0.483 | 0.000 | 1.000 |
| Support for reform (trichotomous) | 40 | −0.200 | 0.992 | −1.000 | 1.000 |
| Support for reform (dichotomous) | 40 | 0.400 | 0.496 | 0.000 | 1.000 |
| Local concentration of kin | 40 | 3.913 | 8.004 | 0.010 | 38.334 |
| Local concentration of kin/N of children | 40 | 2.113 | 4.217 | 0.010 | 15.487 |
| Local concentration of kin (politician) | 30 | 2.043 | 3.810 | 0.003 | 15.106 |
| Local concentration of kin (relational distance discount) | 40 | 0.694 | 1.335 | 0.005 | 6.252 |
| Herfindahl index of kin concentration (county) | 40 | 0.158 | 0.189 | 0.034 | 1.000 |
| Herfindahl index of kin concentration (prefecture) | 40 | 0.189 | 0.193 | 0.059 | 1.000 |
| Herfindahl index of kin concentration (province) | 40 | 0.240 | 0.175 | 0.098 | 1.000 |
| Local concentration of kin (matrilineal discount 0.1) | 40 | 1.882 | 5.875 | 0.001 | 35.514 |
| Local concentration of kin (matrilineal discount 0.2) | 40 | 2.108 | 5.939 | 0.002 | 35.827 |
| Local concentration of kin (matrilineal discount 0.3) | 40 | 2.333 | 6.055 | 0.003 | 36.140 |
| Local concentration of kin (matrilineal discount 0.4) | 40 | 2.559 | 6.220 | 0.004 | 36.454 |
| Local concentration of kin (matrilineal discount 0.5) | 40 | 2.785 | 6.430 | 0.005 | 36.767 |
| Local concentration of kin (matrilineal discount 0.6) | 40 | 3.010 | 6.680 | 0.006 | 37.080 |
| Local concentration of kin (matrilineal discount 0.7) | 40 | 3.236 | 6.967 | 0.007 | 37.394 |
| Local concentration of kin (matrilineal discount 0.8) | 40 | 3.462 | 7.286 | 0.008 | 37.707 |
| Local concentration of kin (matrilineal discount 0.9) | 40 | 3.687 | 7.633 | 0.009 | 38.020 |
| Politician rank change | 40 | 0.525 | 1.261 | −2.000 | 4.000 |
| Betweenness centrality | 40 | 54.638 | 79.497 | 0.000 | 443.731 |
| Degree centrality | 40 | 17.550 | 12.469 | 0.000 | 50.000 |
| Bonacich power | 40 | −0.186 | 1.289 | −4.570 | 2.717 |
| N of kin | 40 | 113.400 | 117.821 | 1.000 | 566.000 |
| N of children | 40 | 2.150 | 1.545 | 1.000 | 8.000 |
| N of children (groups) | 40 | 1.700 | 0.791 | 1.000 | 3.000 |
| Factional tie with reform leader | 40 | 0.325 | 0.474 | 0.000 | 1.000 |
| Politician's first rank | 40 | 2.025 | 0.832 | 1.000 | 4.000 |
| Politician's average rank | 40 | 2.258 | 0.754 | 1.000 | 4.000 |
| Politician's highest rank | 40 | 2.750 | 1.080 | 1.000 | 5.000 |
| Kin centroid exposure to external wars | 40 | 0.025 | 0.006 | 0.013 | 0.039 |
| Kin centroid exposure to mass rebellions | 40 | 0.063 | 0.017 | 0.033 | 0.112 |
| Kin exposure to external wars | 40 | 2.719 | 2.912 | 0.017 | 14.086 |
| Kin exposure to mass rebellions | 40 | 6.206 | 6.581 | 0.041 | 31.798 |
| Ruggedness Index | 40 | 76485.501 | 41970.659 | 12010.493 | 226185.219 |
| Father exam | 40 | 0.175 | 0.385 | 0.000 | 1.000 |
| Father migration | 40 | 5.764 | 36.458 | 0.000 | 230.578 |
| Father official status | 40 | 0.425 | 0.501 | 0.000 | 1.000 |
| Grandfather official status | 40 | 0.625 | 0.490 | 0.000 | 1.000 |
| Uncle official status | 40 | 0.200 | 0.405 | 0.000 | 1.000 |

*Notes:* This table shows the summary statistics of the estimating sample. See text for variable descriptions and data sources.

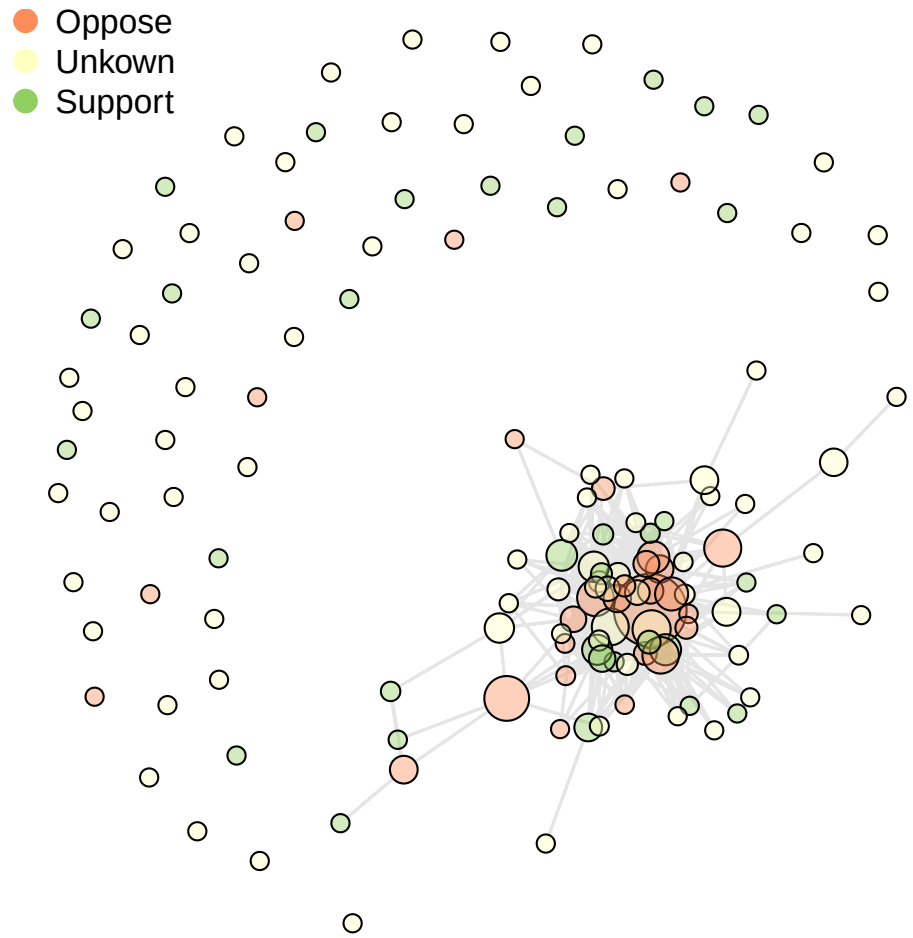


Figure A1-5: Northern Song Politicians' Marriage Network, 1067–1085 CE

*Notes:* This figure shows the social network among the 137 major politicians under Emperor Shenzong in the Northern Song Dynasty. Each node is a major politician. Each edge measures whether there is a marriage tie between the two politicians through one's children, as defined in Figure 2. Nodes are color coded to indicate their attitudes toward the reform: support (green), neutral (yellow), and oppose (orange). The layout algorithm uses Fruchterman-Reingold.

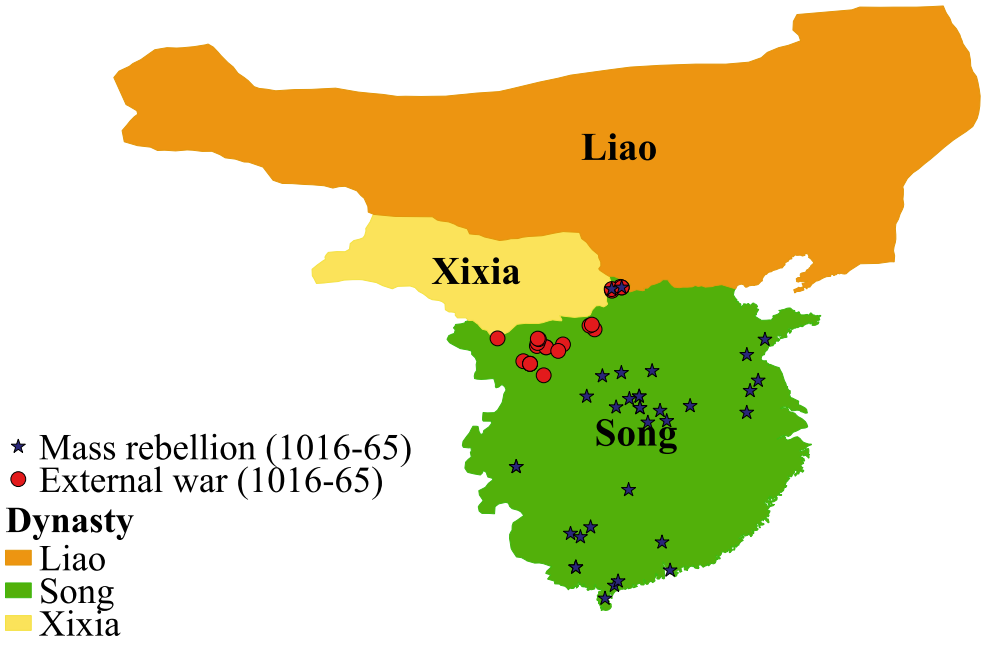


Figure A1-6: Conflicts in Northern Song, 1016–1065 CE

*Notes:* This figure shows the locations of external war and mass rebellion battles during 1016–1065 in the Northern Song Dynasty.

Table A1-3: Comparing Estimating Sample with Observations with Missing Data

| Variable | Sample with missing data | Estimating sample | Difference | *p*-value |
|---|---|---|---|---|
| Support for reform | 0.797 | 0.446 | 0.351 | 0.005 |
| Local concentration of kin | 2.512 | 3.913 | -1.401 | 0.399 |
| Betweenness centrality | 13.716 | 54.638 | -40.921 | 0.000 |
| N of kin | 86.700 | 113.400 | -26.700 | 0.321 |
| N of children | 1.833 | 2.150 | -0.317 | 0.345 |
| Factional tie with reform leader | 0.155 | 0.325 | -0.170 | 0.025 |
| Politician's average rank | 1.841 | 2.258 | -0.418 | 0.001 |
| Kin centroid exposure to external wars | 0.027 | 0.025 | 0.002 | 0.187 |
| Kin centroid exposure to mass rebellions | 0.059 | 0.063 | -0.004 | 0.316 |
| Ruggedness Index | 77675.500 | 76485.500 | 1189.997 | 0.926 |
| Father exam | 0.196 | 0.175 | 0.021 | 0.779 |
| Father migration | 22.157 | 5.764 | 16.392 | 0.303 |

*Notes:* This table shows the *t*-test results comparing the observations with missing data and the estimating sample.

Table A1-4: Distribution of Politicians across Prefectures

| Prefecture ID | N of Observations |
|---|---|
| 12899 | 1 |
| 12784 | 1 |
| 11212 | 2 |
| 12721 | 1 |
| 101125 | 2 |
| 101103 | 1 |
| 12966 | 2 |
| 12296 | 1 |
| 11372 | 1 |
| 13902 | 3 |
| 101099 | 1 |
| 101092 | 1 |
| 13341 | 1 |
| 12697 | 1 |
| 11272 | 1 |
| 11167 | 1 |
| 11724 | 1 |
| 13868 | 2 |
| 11172 | 1 |
| 12688 | 2 |
| 12799 | 1 |
| 11403 | 1 |
| 13940 | 1 |
| 13123 | 1 |
| 101009 | 2 |
| 11027 | 6 |
| 11934 | 1 |

Table A1-5: Distribution of Politicians across Provinces

| Province ID | N of Observations |
|---|---|
| 11026 | 8 |
| 11141 | 2 |
| 11203 | 1 |
| 11371 | 1 |
| 11703 | 1 |
| 11901 | 1 |
| 12214 | 1 |
| 12669 | 5 |
| 12753 | 2 |
| 12824 | 1 |
| 12907 | 4 |
| 13098 | 1 |
| 13284 | 1 |
| 13867 | 8 |
| 20000 | 3 |

Table A1-6: Family Members' Occupations and Geography of Kinship Network: OLS Estimates

| *Dependent variable*: | Local concentration of kin | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Father official status | -0.073 | | | -0.054 | 0.131 |
| | (0.144) | | | (0.128) | (0.341) |
| Grandfather official status | | -0.032 | | -0.035 | -0.385 |
| | | (0.114) | | (0.105) | (0.293) |
| Uncle official status | | | -0.128 | -0.128 | -0.021 |
| | | | (0.137) | (0.142) | (0.687) |
| Prefecture FE | No | No | No | No | Yes |
| Outcome mean | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Observations | 40 | 40 | 40 | 40 | 40 |
| R2 | 0.005 | 0.001 | 0.016 | 0.021 | 0.474 |

*Notes:* This table reports the results for the 40 politicians included in the main analysis. The dependent variable is an index on local concentration of kin, with higher values indicating more localized networks. The variables of interest are indicators on whether a family member (father, grandfather, or uncle) was a government official. *Uncle official status* equals 1 if at least one uncle was a government official. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-7: Marginal Effect of *Local Concentration of Kin* on *Support for Reform* Conditional on *Kin Exposure to External Wars* and *Kin Exposure to Mass Rebellions*: OLS Estimates

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.187** | -0.214*** |
| | (0.073) | (0.068) |
| Kin exposure to external wars | -0.394*** | |
| | (0.113) | |
| Local Concentration of kin*Kin exposure to external wars | -0.252 | |
| | (0.219) | |
| Kin exposure to mass rebellions | | -0.387*** |
| | | (0.107) |
| Local Concentration of kin*Kin exposure to mass rebellions | | -0.249 |
| | | (0.184) |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.178 | 0.177 |

*Notes:* This table reports the results for the 40 politicians included in the main analysis. The variables of interest is an index on local concentration of kin, with higher values indicating more localized networks. *Kin exposure to external wars* is measured by $\sum_{k_i \in K_i} \sum_{w \in W} (1 + distance_{k_i,w})^{-1}$, where $distance_{k_i,w}$ is the "as the crow flies" distance (in kilometers) from politician $i$'s kin $k_i$ to an external war battle $w$. The set $W$ includes all external war battles fought between Song and non-Song regimes, such as Liao and Xixia, from 1016 to 1065. The set $K_i$ includes all politician $i$'s kin members. This index increases as external war battles are closer. *Kin exposure to mass rebellions* is measured by $\sum_{k_i \in K_i} \sum_{w \in W} (1 + distance_{k_i,w})^{-1}$, where $distance_{k_i,w}$ is the "as the crow flies" distance (in kilometers) from politician $i$'s kin $k_i$ to a mass rebellion battle $w$. The set $W$ includes all mass rebellion battles from 1016 to 1065. The set $K_i$ includes all politician $i$'s kin members. This index increases as mass rebellion battles are closer. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

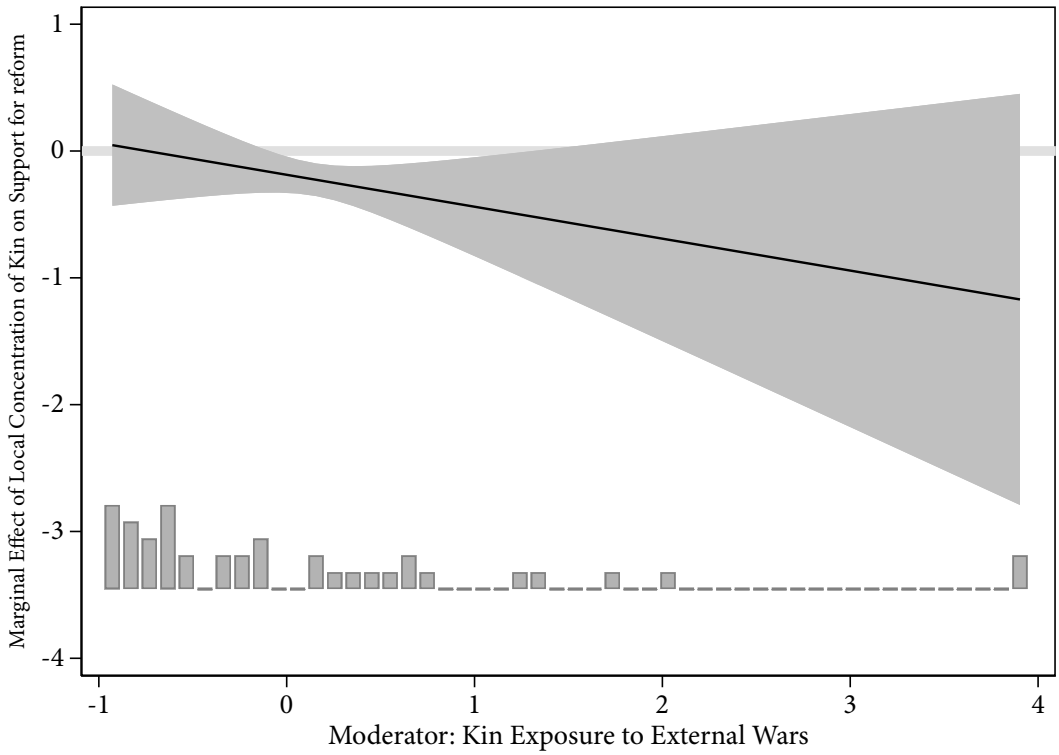


Figure A1-7: Marginal Effect of *Local Concentration of Kin* on *Support for Reform* Conditional on *Kin Exposure to External Wars*

*Notes:* This graph plots the marginal effects of *Local concentration of kin* on *Support for reform*, conditional on *Kin exposure to external wars*. Appendix Table A1-7 (column (1)) reports the regression estimates. *Kin exposure to external wars* is measured by $\sum_{k_i \in K_i} \sum_{w \in W} (1 + distance_{k_i,w})^{-1}$, where $distance_{k_i,w}$ is the "as the crow flies" distance (in kilometers) from politician $i$'s kin $k_i$ to an external war battle $w$. The set $W$ includes all external war battles fought between Song and non-Song regimes, such as Liao and Xixia, from 1016 to 1065. The set $K_i$ includes all politician $i$'s kin members. This index increases as external war battles are closer. All variables are standardized. The shaded area is the 95% confidence interval, which is based on standard errors that are clustered at the prefectural level. I use the algorithm proposed by Hainmueller, Mummolo, and Xu (2019) and implement it using Stata's *interflex* command.

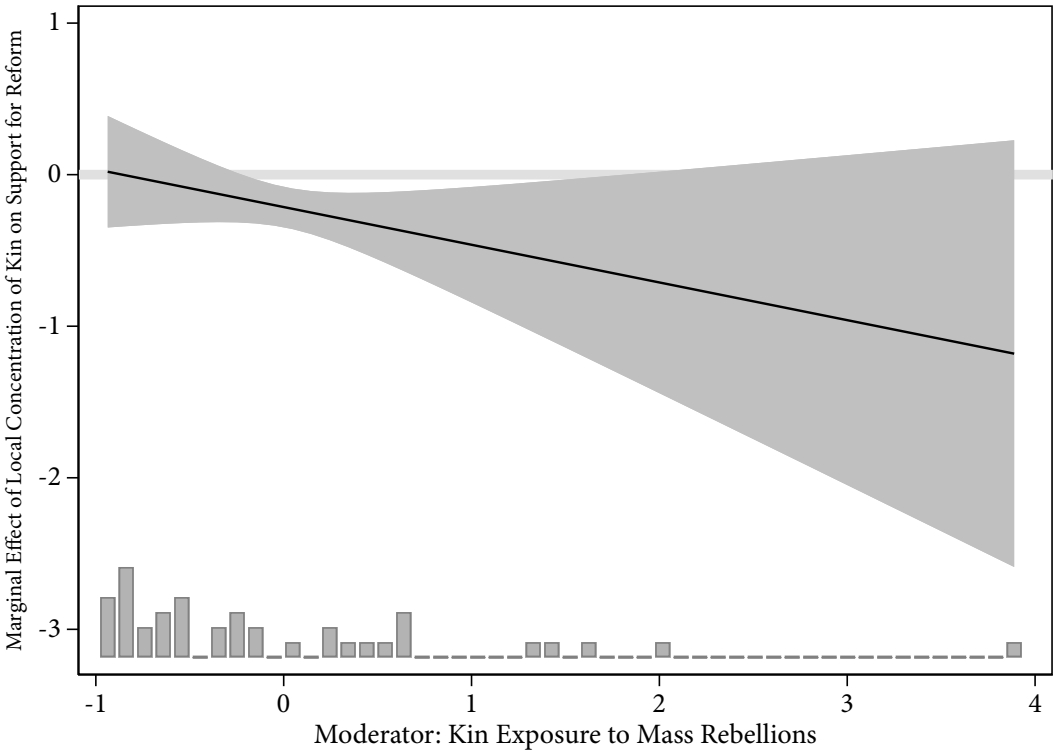


Figure A1-8: Marginal Effect of *Local Concentration of Kin* on *Support for Reform* Conditional on *Kin Exposure to Mass Rebellions*

*Notes:* This graph plots the marginal effects of *Local concentration of kin* on *Support for reform*, conditional on *Local exposure to mass rebellions*. Appendix Table A1-7 (column (2)) reports the regression estimates. *Kin exposure to mass rebellions* is measured by $\sum_{k_i \in K_i} \sum_{w \in W} (1 + distance_{k_i,w})^{-1}$, where $distance_{k_i,w}$ is the "as the crow flies" distance (in kilometers) from politician $i$'s kin $k_i$ to a mass rebellion battle $w$. The set $W$ includes all mass rebellion battles from 1016 to 1065. The set $K_i$ includes all politician $i$'s kin members. This index increases as mass rebellion battles are closer. All variables are standardized. The shaded area is the 95% confidence interval, which is based on standard errors that are clustered at the prefectural level. I use the algorithm proposed by Hainmueller, Mummolo, and Xu (2019) and implement it using Stata's *interflex* command.

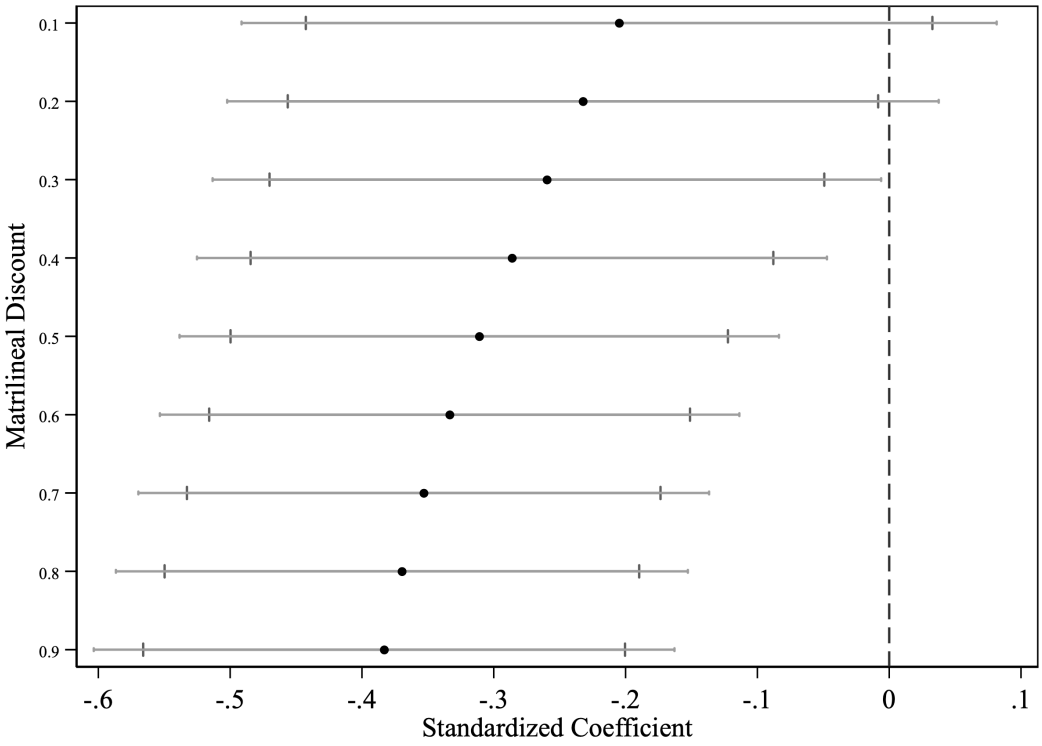


Figure A1-9: OLS Estimates with Different Matrilineal Discount Rates

*Notes:* This figure shows the OLS estimates of *Local concentration of kin* with various "matrilineal discounts" on *Support for reform*. All regressions control for *Father migration* and hometown prefecture fixed effects (same with column (4) of Table 2). All variables are standardized. Bars show 90% confidence intervals, and lines 95% confidence intervals. Standard errors are clustered at the prefectural level.

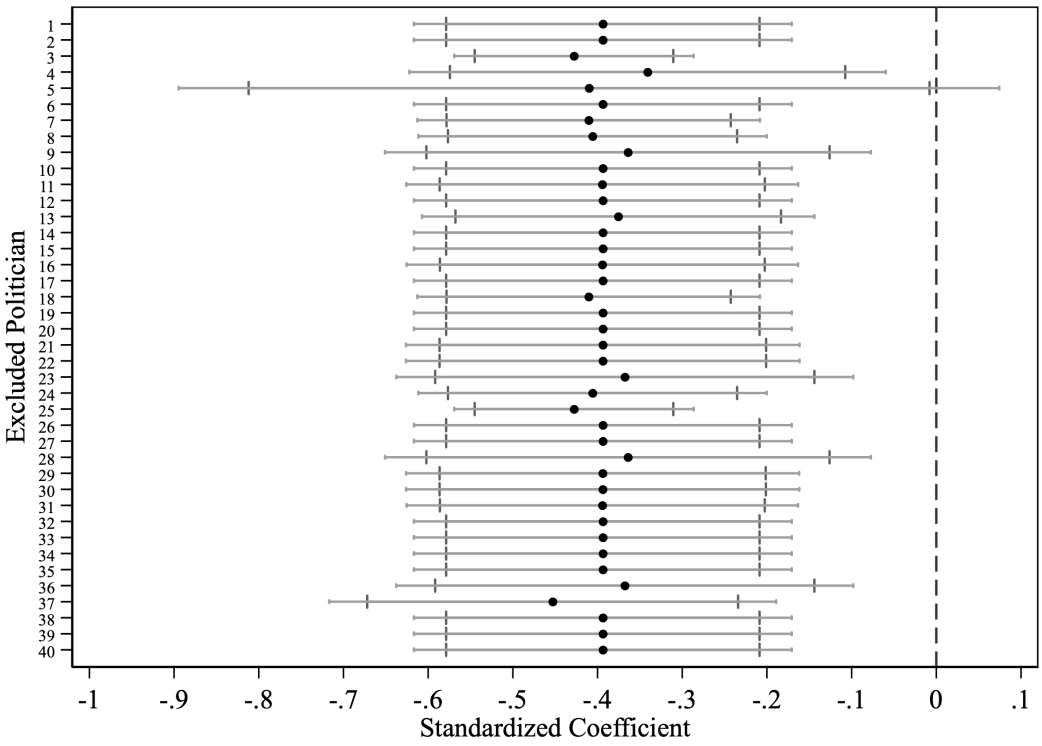


Figure A1-10: OLS Estimates Dropping One Politician at a Time

*Notes:* This figure shows the OLS estimates of *Local concentration of kin* on *Support for reform*, dropping one politician at a time. All regressions control for *Father migration* and hometown prefecture fixed effects (same with column (4) of Table 2). All variables are standardized. Bars show 90% confidence intervals, and lines 95% confidence intervals. Standard errors are clustered at the prefectural level.

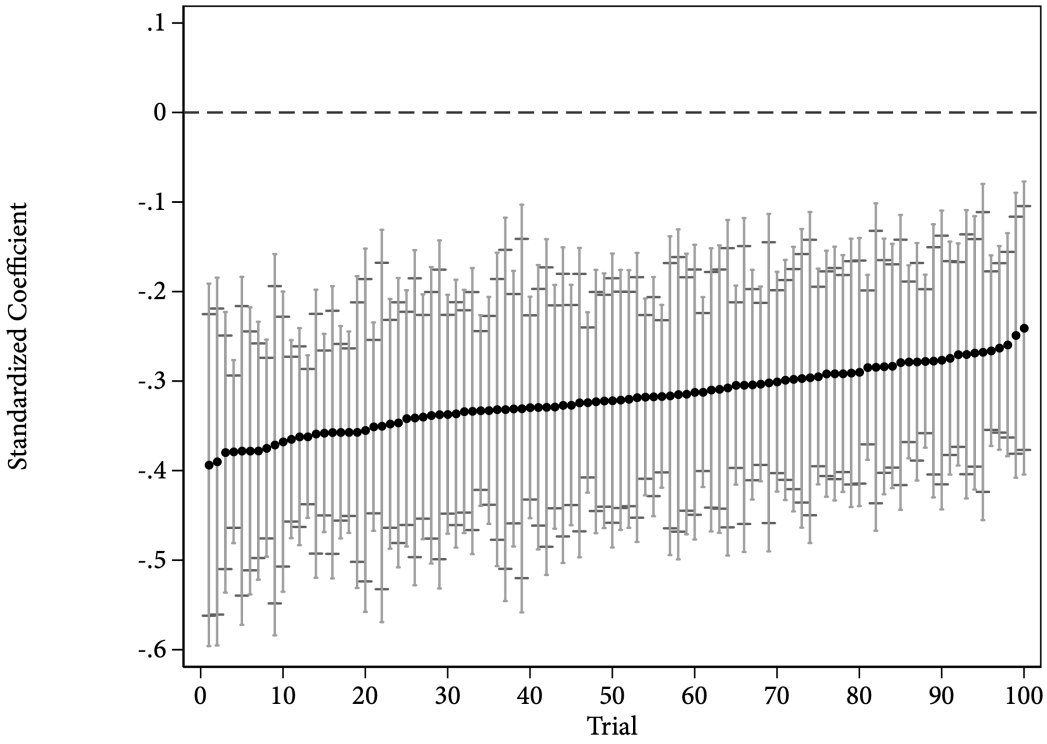


Figure A1-11: OLS Estimates using Randomly Assigned Political Attitudes

*Notes:* This figure shows the OLS estimates of *Local concentration of kin* on *Support for reform*. Politicians with unknown political attitudes are randomly assigned an attitude (0,1) by flipping a coin (i.e., drawing from the Bernoulli distribution). All regressions control for *Father migration* and hometown prefecture fixed effects (same with column (4) of Table 2). All variables are standardized. Bars show 90% confidence intervals, and lines 95% confidence intervals. Standard errors are clustered at the prefectural level.

Table A1-8: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Dichotomous Dependent Variable

| *Dependent variable*: | Support for reform (dichotomous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.208*** | -0.188* |
| | (0.072) | (0.092) |
| Father migration | | -0.157*** |
| | | (0.025) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.043 | 0.673 |

*Notes:* Dependent variable is a dichotomous measure of support for the state-building reform. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-9: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Trichotomous Dependent Variable

| *Dependent variable*: | Support for reform (trichotomous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.201*** | -0.231*** |
| | (0.055) | (0.070) |
| Father migration | | -0.010 |
| | | (0.013) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 68 | 68 |
| $R^2$ | 0.041 | 0.575 |

*Notes:* Dependent variable is a trichotomous measure of support for the state-building reform. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-10: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Policy-Relevant Sample

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.285*** | -0.445*** |
| | (0.082) | (0.100) |
| Father migration | | -0.145*** |
| | | (0.027) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 32 | 32 |
| $R^2$ | 0.081 | 0.741 |

*Notes:* Sample includes only policy-relevant politicians. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-11: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Politician's Own Marriage Network

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin (politician) | -0.179** | -0.598*** |
| | (0.070) | (0.138) |
| Father migration | | -0.208*** |
| | | (0.063) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 30 | 30 |
| $R^2$ | 0.032 | 0.891 |

*Notes:* The variable of interest is an index on local concentration of kin, who were connected with the politician through his own marriage(s) (rather than his children's marriages). All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-12: Geography of Kinship Network and *Support for Reform*: IV Estimates with Politician's Own Marriage Network

| Second stage | | |
|---|---|---|
| *Dependent variable*: | Support for reform (continuous) | |
| | (1) | (2) |
| Local concentration of kin | -0.242*** | -0.625*** |
| | (0.091) | (0.057) |
| Father migration | | -0.161*** |
| | | (0.021) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 30 | 30 |
| $R^2$ | 0.069 | 0.835 |
| **First stage** | | |
| *Dependent variable*: | Local concentration of kin | |
| | (1) | (2) |
| Local concentration of kin (politician) | 0.738*** | 0.956*** |
| | (0.089) | (0.018) |
| Father migration | | 0.075*** |
| | | (0.008) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 30 | 30 |
| $F$-stat of excluded instrument | 68.77 | 2,855.86 |
| $R^2$ | 0.545 | 0.820 |

*Notes:* This table presents the two-stage least-squares estimates of the effects of *Local concentration of kin* on *Support for reform*. The upper panel presents the second-stage results, while the bottom panel presents the first-stage results. The variable of interest in the upper panel is an index on local concentration of kin, who were connected with the politician through his children's marriages. The variable of interest in the lower panel is an index on local concentration of kin, who were connected with the politician through his own marriage(s). All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-13: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Transformed Independent Variables

| *Dependent variable*: | Support for reform (continuous) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Local concentration of kin (IHS) | -0.367*** | -0.590* | | |
| | (0.124) | (0.343) | | |
| Local concentration of kin (square root) | | | -0.665*** | -1.051* |
| | | | (0.216) | (0.543) |
| Father migration | | -0.124** | | -0.126** |
| | | (0.060) | | (0.055) |
| Prefecture FE | No | Yes | No | Yes |
| Outcome mean | 0.000 | 0.000 | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 | 1.000 | 1.000 |
| Observations | 40 | 40 | 40 | 40 |
| $R^2$ | 0.057 | 0.713 | 0.059 | 0.717 |

*Notes:* Variable of interest in columns (1)-(2) is the inverse hyperbolic sine (IHS) of *Local concentration of kin*. $Local\ concentration\ of\ kin\ (IHS) \equiv \ln[Local\ concentration\ of\ kin + (Local\ concentration\ of\ kin^2 + 1)^{1/2}]$. For advantages of using IHS transformation, see Burbidge, Magee, and Robb (1988). Variable of interest in columns (3)-(4) is the square root of *Local concentration of kin*. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-14: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Local Concentration of Kin Weighted by Number of Children

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin/N of children | -0.278*** | -0.452* |
| | (0.089) | (0.261) |
| Father migration | | -0.107** |
| | | (0.050) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.077 | 0.738 |

*Notes:* Variable of interest is an index on local concentration of kin divided by the number of children. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-15: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Relational Distance Weighted Independent Variable

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin (relational distance discount) | -0.215*** | -0.381*** |
| | (0.073) | (0.133) |
| Father migration | | -0.128*** |
| | | (0.038) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.046 | 0.719 |

*Notes:* Variable of interest is an index on local concentration of kin (relational distance discount). All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-16: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Herfindahl Index of Kin Concentration

| *Dependent variable*: | Support for reform (continuous) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Herfindahl index of kin concentration (county) | -0.271** | -0.481 | | | | |
| | (0.114) | (2.050) | | | | |
| Herfindahl index of kin concentration (prefecture) | | | -0.300** | -0.493 | | |
| | | | (0.122) | (1.270) | | |
| Herfindahl index of kin concentration (province) | | | | | -0.266** | -0.248 |
| | | | | | (0.124) | (1.375) |
| Father migration | | -0.063 | | -0.081 | | -0.043 |
| | | (0.122) | | (0.118) | | (0.053) |
| N of kin | -0.460*** | -0.423** | -0.476*** | -0.466*** | -0.463*** | -0.383 |
| | (0.115) | (0.173) | (0.111) | (0.115) | (0.108) | (0.237) |
| Prefecture FE | No | Yes | No | Yes | No | Yes |
| Outcome mean | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Observations | 40 | 40 | 40 | 40 | 40 | 40 |
| $R^2$ | 0.175 | 0.687 | 0.188 | 0.700 | 0.172 | 0.683 |

*Notes:* Variable of interest is a Herfindahl index on the concentration of kin. The Herfindahl index is constructed as $\sum_{j \in J} kinpercent_j^2$, where $kinpercent_j$ is the share of kin members in administrative unit $j$ – county (columns (1)-(2)), prefecture (columns (3)-(4)), or province (columns (5)-(6)). The set $J$ includes all the administrative units in which kin members live. This index increases as more relatives are concentrated in a few localities. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-17: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Alternative Centrality Measures

| *Dependent variable*: | Support for reform (continuous) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Local concentration of kin | -0.198** | -0.364* | -0.244*** | -0.406** |
| | (0.092) | (0.187) | (0.066) | (0.184) |
| Degree centrality | -0.204 | -0.175 | | |
| | (0.185) | (0.723) | | |
| Bonacich power | | | -0.039 | 0.117 |
| | | | (0.169) | (0.937) |
| Father migration | | -0.160 | | -0.154 |
| | | (0.126) | | (0.238) |
| Prefecture FE | No | Yes | No | Yes |
| Outcome mean | 0.000 | 0.000 | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 | 1.000 | 1.000 |
| Observations | 40 | 40 | 40 | 40 |
| $R^2$ | 0.101 | 0.742 | 0.064 | 0.733 |

*Notes:* Covariate in columns (1)–(2) is *Degree centrality* – the number of ties a politician had in the marriage network among 137 politicians. Covariate in columns (3)–(4) is *Bonacich power* – a centrality measure that takes into account how many ties a politician had and how many ties the politicians in the neighborhood had. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-18: Geography of Kinship Network and *Support for Reform*: OLS Estimates Controlling for Number of Children Flexibly

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.186* | -0.248 |
| | (0.104) | (0.300) |
| Children group (2-3 children) | -0.445 | -0.526 |
| | (0.340) | (1.108) |
| Children group (>3 children) | 0.238 | 0.205 |
| | (0.327) | (0.977) |
| Father migration | | -0.137 |
| | | (0.093) |
| Prefecture FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.123 | 0.753 |

*Notes:* Variable of interest is an index on local concentration of kin. Children group is an ordinal variable with three categories: 1 child, 2-3 children, and more than 3 children. The latter two groups enter the regressions, with the first group as the reference group. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-19: Geography of Kinship Network and *Support for Reform*: OLS Estimates Controlling for Politician's Highest or First Rank

| *Dependent variable*: | Support for reform (continuous) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Local concentration of kin | -0.262*** | -0.400*** | -0.247*** | -0.408*** |
| | (0.067) | (0.101) | (0.069) | (0.139) |
| Politician's highest rank | 0.144 | -0.102 | | |
| | (0.149) | (0.406) | | |
| Politician's first rank | | | -0.117 | -0.149 |
| | | | (0.142) | (0.441) |
| Father migration | | -0.148* | | -0.163 |
| | | (0.080) | | (0.115) |
| Prefecture FE | No | Yes | No | Yes |
| Outcome mean | 0.000 | 0.000 | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 | 1.000 | 1.000 |
| Observations | 40 | 40 | 40 | 40 |
| $R^2$ | 0.083 | 0.736 | 0.076 | 0.740 |

*Notes:* Variable of interest is an index on local concentration of kin. A politician's rank ranges from 1 to 6, with higher numbers indicating higher ranks. Politician's highest rank is the highest rank the politician held during Shenzong's reign. Politician's first rank is the first rank the politician held during Shenzong's reign. All variables are standardized. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-20: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Imputed Datasets

| *Dependent variable*: | Support for reform (continuous) |
|---|---|
| Local concentration of kin | -0.018** |
| | (0.008) |
| Observations | 137 |

*Notes:* Multiple imputation is a Monte Carlo technique in which the missing values are replaced by multiple simulated versions. In Rubin's (1996) method for 'repeated imputation' inference, each of the simulated complete datasets is analyzed by standard methods, and the results are later combined to produce estimates and confidence intervals that incorporate missing-data uncertainty. I use Stata's *mi* suit of commands to create 20 imputations for each missing value in the dependent variable and independent variable. I then fit an OLS model separately on each of the 20 imputed datasets and combine the results. Robust standard errors clustered at the prefectural level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-21: Geography of Kinship Network and *Support for Reform*: OLS Estimates with Province Fixed Effects

| *Dependent variable*: | Support for reform (continuous) | |
|---|---|---|
| | (1) | (2) |
| Local concentration of kin | -0.250*** | -0.287*** |
| | (0.069) | (0.049) |
| Father migration | | 0.160*** |
| | | (0.001) |
| Provincial FE | No | Yes |
| Outcome mean | 0.000 | 0.000 |
| Outcome std.dev. | 1.000 | 1.000 |
| Observations | 40 | 40 |
| $R^2$ | 0.062 | 0.461 |

*Notes:* Column (2) controls for province fixed effects. All variables are standardized. Robust standard errors clustered at the provincial level in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A1-22: Using Selection on Observables to Assess the Bias from Unobservables

| Observables | **AET Ratio** |
|---|---|
| Combination (1): All covariates, including prefecture f.e. | 13.650 |
| Combination (2): Only prefecture f.e. | 15.328 |

*Notes*: This table reports the "AET ratio" based on Altonji, Elder, and Taber (2005) and implemented by Chaudoin, Hays, and Hicks's (2018) Stata command *poet*. The higher is the ratio, the stronger selection on unobservables needs to be, relative to observables, to explain away the entire effect.

**References for the Online Appendix**:

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