**Online Appendix C:**

**SUPPLEMENTAL ANALYSIS**

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**\* ROBUSTNESS TEST 1: BORROWING COSTS WITH CREDIT ACCESS SELECTION**

**Stata Command:**

. heckman avg\_spread Lavg\_spread cb war cb\_war comp /\*cent\*/ topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4, select(f\_credit\_access = cb war cb\_war comp trade gdp lnpop growth urban internal\_disruption GS Default cw s\_lead colwar topitaxrate2) twostep

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| *Spread Model* |  |
| Central Bank | 0.08 |
|  | (0.07) |
|  |
| Interstate War | 0.06 |
|  | (0.15) |
|  |  |
| Central Bank  | 0.27 |
| X Interstate War | (0.28) |
|  |  |
|  |  |
| *Credit Access Model* |  |
| Central Bank | 0.08 |
|  | (0.07) |
|  |
| Interstate War | 0.06 |
|  | (0.15) |
|  |  |
| Central Bank  | 0.27 |
| X Interstate War | (0.28) |
|  |  |
|  Number of Observations  |  2,917  |

Note 1: Spread model includes time polynomial and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text.

Note 2: Credit Access Model does not include lagged dependent variable or time polymial. Credit Access Model also includes foreign policy similarity with system leader (UK).

Note 3: Results from control variables suppressed for ease of reading. Available in replication packet.

Note 4: Rho = 0.28

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.11 | -0.01 | -0.21 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows that, even after accounting for selection effects, central banks reduce the spread when the state is at war.*

**\* ROBUSTNESS TEST 2: Split between “Rich” and “Poor”**

**Stata Commands to Create Rich Variable:**

. sum gdp, detail

. local median = r(p50)

. capture drop rich

. capture drop cb\_rich

. capture drop comp\_rich

. capture drop comp\_rich\_cb

. capture drop cb\_comp

. gen rich = 0

. replace rich = 1 if gdp>`median'

(1399 real changes made)

**Stata Commands to Run Model on Rich Countries:**

. xtreg avg\_spread Lavg\_spread cb war cb\_war comp topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4 if rich==0, re

**Stata Commands to Run Model on Poor Countries:**

. xtreg avg\_spread Lavg\_spread cb war cb\_war comp topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4 if rich==1, re

**Regression Output**:

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | “Rich” Countries | “Poor” Countries |
|  |  |  |
| Central Bank | -0.00 | 0.01 |
|  | (0.03) | (0.02) |
|  |  |
| Interstate War | -0.02 | 0.06 |
|  | (0.08) | (0.04) |
|  |  |  |
| Central Bank  | -0.04 | -0.34\*\*\* |
| X Interstate War | (0.09) | (0.11) |
|  |  |  |
|  |  |  |
|  Number of Observations  |  726  | 723 |

Note: Models include random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading (available in replication packet).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| *RICH MODEL* |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.04 | 0.13 | -0.21 |
| *POOR MODEL* |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.33 | -0.12 | -0.55 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows while the effect is identified as negative for both rich countries and poor countries, it is statistically signifficant only for poor countries. Since the confidence intervals do not overlap, this lends some credence to the North, Wallis, and Weingast (2009) story. However, one must keep in mind that, during the time period under evaluation, most countries would be considered `poor’ by today’s standards.*

**\* ROBUSTNESS TEST 3: Split by Regime Type**

**Stata Commands to Run Model on Countries without Representative Institutions:**

. xtreg avg\_spread Lavg\_spread cb war cb\_war topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4 if comp==0, re

**Stata Commands to Run Model on Countries with Representative Institutions:**

 . xtreg avg\_spread Lavg\_spread cb war cb\_war topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4 if comp==1, re

**Regression Output**:

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | With Representative Institutions | Without Representative Institutions |
|  |  |  |
| Central Bank | -0.01 | -0.01 |
|  | (0.03) | (0.02) |
|  |  |
| Interstate War | 0.02 | 0.05 |
|  | (0.11) | (0.04) |
|  |  |  |
| Central Bank  | -0.06 | -0.13\*\* |
| X Interstate War | (0.12) | (0.06) |
|  |  |  |
|  |  |  |
|  Number of Observations  |  503  | 946 |

Note: Models include random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading (available in replication packet).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| *With Representative Institutions* |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.07 | 0.17 | -0.31 |
| *Without Representative Institutions* |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.14 | -0.02 | -0.27 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows while the effect is identified as negative for both countires with representative institutions and without representative institutions, it is statistically significant only for countries without representative institutions. However, since the confidence intervals for when the country has representative isntitutions contains the effect for when the country does not have representative institutions (indeed, the confidence intervals for when the country has representative institutions completely contain the confidence intervals for when the country does not have represenetative institutions), this suggests that, statistically speaking, the effect is indistinguishable between countries with and without representative institutions.*

**\* ROBUSTNESS TEST 4: REMOVE UK FROM SAMPLE**

**Stata Command:**

. xtreg avg\_spread Lavg\_spread cb war cb\_war comp /\*cent\*/ topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4 if ccode~=200, re

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| Central Bank | 0.01 |
|  | (0.02) |
|  |
| Interstate War | 0.04 |
|  | (0.04) |
|  |  |
| Central Bank  | -0.12\*\* |
| X Interstate War | (0.05) |
|  |  |
|  |  |
|  Number of Observations  |  1,352  |

Note: Model includes random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading. Available in replication packet.

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.11 | -0.01 | -0.21 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows that, even after removing the UK from the sample, central banks reduce the spread when the state is at war.*

**\* ROBUSTNESS TEST 5: CONTROL FOR CENTRALIZATION**

**Variable Description:**

A *Centralization* score of 1 indicates that the country is a unitary state in which no more than moderate decision-making authority is vested in local or regional governments. The United Kingdom is a classic case of such a country, though the majority of states in the Polity dataset (48) fall into this category. A score of 3 indicates that the country has a federal system in which local and/or regional governments have substantial decision-making authority. The United States during the 19th century is a prime example of such a state. Eleven (11) countries, including Germany, fall into this category. A score of 2 suggests a mixture between centralization and a federal system, though only three (3) countries fall into this category.

**Stata Command:**

. xtreg avg\_spread Lavg\_spread cb war cb\_war comp cent topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwa

> r year year2 year3 year4, re

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| Central Bank | 0.01 |
|  | (0.02) |
|  |
| Interstate War | 0.04 |
|  | (0.04) |
|  |  |
| Central Bank  | -0.12\*\* |
| X Interstate War | (0.05) |
|  |  |
|  |  |
|  Number of Observations  |  1,446  |

Note 1: Model includes random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading (available in replication packet).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.11 | -0.01 | -0.21 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows that, even after controlling for centralization, central banks reduce the spread when the state is at war.*

**\* ROBUSTNESS TEST 6: Moving Averages**

**Stata Commands for Creating the Moving Average Variables:**

. gen Move5\_spread = (avg\_spread + L.avg\_spread + L2.avg\_spread + L3.avg\_spread + L4.avg\_spread + L5.avg\_spread)/5

. gen Move5\_cb = (cb + L.cb + L2.cb + L3.cb + L4.cb + L5.cb)/5

. gen Move5\_war = (war + L.war + L2.war + L3.war + L4.war + L5.war)/5

. gen Move5\_comp = (comp + L.comp + L2.comp + L3.comp + L4.comp + L5.comp)/5

. gen Move5\_topitaxrate2 = (topitaxrate2 + L.topitaxrate2 + L2.topitaxrate2 + L3.topitaxrate2 + L4.topitaxrate2 + L5.topitaxrate2)/5

. gen Move5\_trade = (trade + L.trade + L2.trade + L3.trade + L4.trade + L5.trade)/5

. gen Move5\_gdp = (gdp + L.gdp + L2.gdp + L3.gdp + L4.gdp + L5.gdp)/5

. gen Move5\_lnpop = (lnpop + L.lnpop + L2.lnpop + L3.lnpop + L4.lnpop + L5.lnpop)/5

. gen Move5\_growth = (growth + L.growth + L2.growth + L3.growth + L4.growth + L5.growth)/5

. gen Move5\_urban = (urban + L.urban + L2.urban + L3.urban + L4.urban + L5.urban)/5

. gen Move5\_internal\_disruption = (internal\_disruption + L.internal\_disruption + L2.internal\_disruption + L3.internal\_disruption + L4.in

> ternal\_disruption + L5.internal\_disruption)/5

. gen Move5\_GS = (lnpop + L.lnpop + L2.lnpop + L3.lnpop + L4.lnpop + L5.lnpop)/5

. gen Move5\_Default = (Default + L.Default + L2.Default + L3.Default + L4.Default + L5.Default)/5

. gen Move5\_cw = (cw + L.cw + L2.cw + L3.cw + L4.cw + L5.cw)/5

. gen Move5\_colwar = (colwar + L.colwar + L2.colwar + L3.colwar + L4.colwar + L5.colwar)/5

. gen Move5\_cb\_war = Move5\_war\*Move5\_cb

**Stata Estimation Commands:**

. reg Move5\_spread Move5\_cb Move5\_war Move5\_cb\_war Move5\_comp /\*cent\*/ Move5\_topitaxrate2 Move5\_trade Move5\_gdp Move5\_lnpop Move5\_growth Move5\_urban Move5\_internal\_disruption Move5\_GS Move5\_Default Move5\_cw Move5\_colwar

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| Central Bank | -0.15\*\*\* |
|  | (0.02) |
|  |
| Interstate War | -0.09 |
|  | (0.08) |
|  |  |
| Central Bank  | -0.05 |
| X Interstate War | (0.11) |
|  |  |
|  |  |
|  Number of Observations  |  1,319  |

Note 1: Results from control variables suppressed for ease of reading (available in replication packet).

Note 2: The Modifying Variable, Interstate War, now ranges from 0 to 1 (meaning 0 percent of the years in the five year period experienced war, to 100 percent of the years in the five year period experienced war).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War)\*0 | -0.15 | -0.10 | -0.20 |
|  |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War)\*0.5 | -0.17 | -0.07 | -0.28 |
|  |  |  |  |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War)\*1 | -0.20\* | 0.01 | -0.41 |
|  |  |  |  |

\* Significant at the 0.90 confidence level.

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows that the amount by which having a central bank reduces the 5-year moving average spread increases as the country is at war for a higher proportion of years over the 5-year period.*

**\* ROBUSTNESS TEST 7: YIELD AS THE DEPENDENT VARIABLE**

**Stata Command:**

. xtreg master\_yield Lyield cb war cb\_war comp /\*cent\*/ topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4, re

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| Central Bank | -0.15 |
|  | (0.17) |
|  |
| Interstate War | 0.35 |
|  | (0.41) |
|  |  |
| Central Bank  | -0.15 |
| X Interstate War | (0.55) |
|  |  |
|  |  |
|  Number of Observations  |  1,449  |

Note: Model includes random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading (available in replication packet).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.30 | 0.77 | -1.37 |

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows central banks reduces the yield by more when the state is at war compared to when it is not at war. However, it should be noted that the effect is statistically indistinguishable from zero. As discussed in the text, this null result is of little concern, since theappropriate dependent variable is the spread.*

**\* ROBUSTNESS TEST 8: WITH YEAR FIXED EFFECTS**

**Stata Command:**

. xi: reg avg\_spread cb war cb\_war comp /\*cent\*/ topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar i.year

**Regression Output**:

Model Not identified. Specifically, the standard errors could not be computed (see the results reported in the online appendix), which is an extreme form of the consequences associated with near-collinearity (Cameron and Trivedi 2005, 350). Given that including these variables places a large number of dummy variables in a model with a limited number of observations and relatively short panels for several countries, such an error is unsurprising.

Citation: Cameron, A. Colin and Pravin K. Trivedi. 2005. *Microeconometrics: Methods and Applications*. New York, NY: Cambridge University Press

Below is the Stata output:

 *Source | SS df MS Number of obs = 1449*

*-------------+------------------------------ F(111, 1337) = .*

 *Model | 383.175603 111 3.45203246 Prob > F = .*

 *Residual | 0 1337 0 R-squared = 1.0000*

*-------------+------------------------------ Adj R-squared = 1.0000*

 *Total | 383.175603 1448 .264624036 Root MSE = 0*

*-------------------------------------------------------------------------------------*

 *avg\_spread | Coef. Std. Err. t P>|t| [95% Conf. Interval]*

*--------------------+----------------------------------------------------------------*

 *cb | -6.61e-14 . . . . .*

 *war | 2.03e-15 . . . . .*

 *cb\_war | -9.75e-15 . . . . .*

 *comp | -9.02e-15 . . . . .*

 *topitaxrate2 | -9.96e-15 . . . . .*

 *trade | 9.17e-14 . . . . .*

 *gdp | 2.78e-13 . . . . .*

 *lnpop | 4.33e-19 . . . . .*

 *growth | -2.37e-13 . . . . .*

 *urban | 1.62e-14 . . . . .*

*internal\_disruption | 1.36e-14 . . . . .*

 *GS | 5.59e-14 . . . . .*

 *Default | 5.37e-14 . . . . .*

 *cw | 1.22e-14 . . . . .*

 *colwar | -1.99e-14 . . . . .*

 *\_Iyear\_1816 | 0 (omitted)*

 *\_Iyear\_1817 | 0 (omitted)*

 *\_Iyear\_1818 | .7045832 . . . . .*

 *\_Iyear\_1819 | .4794159 . . . . .*

 *\_Iyear\_1820 | .9359326 . . . . .*

 *\_Iyear\_1821 | 1.838541 . . . . .*

 *\_Iyear\_1822 | 2.114991 . . . . .*

 *\_Iyear\_1823 | 2.052266 . . . . .*

 *\_Iyear\_1824 | 2.373666 . . . . .*

 *\_Iyear\_1825 | 2.839517 . . . . .*

 *\_Iyear\_1826 | 3.310249 . . . . .*

 *\_Iyear\_1827 | 3.19438 . . . . .*

 *\_Iyear\_1828 | 3.246824 . . . . .*

 *\_Iyear\_1829 | 3.307675 . . . . .*

 *\_Iyear\_1830 | 2.704999 . . . . .*

 *\_Iyear\_1831 | 2.376913 . . . . .*

 *\_Iyear\_1832 | 3.166475 . . . . .*

 *\_Iyear\_1833 | 3.041191 . . . . .*

 *\_Iyear\_1834 | 2.933216 . . . . .*

 *\_Iyear\_1835 | 2.826825 . . . . .*

 *\_Iyear\_1836 | 2.851082 . . . . .*

 *\_Iyear\_1837 | 2.883945 . . . . .*

 *\_Iyear\_1838 | 2.859242 . . . . .*

 *\_Iyear\_1839 | 2.868141 . . . . .*

 *\_Iyear\_1840 | 2.713074 . . . . .*

 *\_Iyear\_1841 | 2.622733 . . . . .*

 *\_Iyear\_1842 | 2.671528 . . . . .*

 *\_Iyear\_1843 | 2.924458 . . . . .*

 *\_Iyear\_1844 | 2.73387 . . . . .*

 *\_Iyear\_1845 | 2.81299 . . . . .*

 *\_Iyear\_1846 | 2.926765 . . . . .*

 *\_Iyear\_1847 | 2.641799 . . . . .*

 *\_Iyear\_1848 | 1.405611 . . . . .*

 *\_Iyear\_1849 | 1.528122 . . . . .*

 *\_Iyear\_1850 | 1.558191 . . . . .*

 *\_Iyear\_1851 | 1.71514 . . . . .*

 *\_Iyear\_1852 | 2.552434 . . . . .*

 *\_Iyear\_1853 | 2.849728 . . . . .*

 *\_Iyear\_1854 | 2.850935 . . . . .*

 *\_Iyear\_1855 | 2.592599 . . . . .*

 *\_Iyear\_1856 | 2.633985 . . . . .*

 *\_Iyear\_1857 | 2.547482 . . . . .*

 *\_Iyear\_1858 | 2.663995 . . . . .*

 *\_Iyear\_1859 | 2.589517 . . . . .*

 *\_Iyear\_1860 | 2.636519 . . . . .*

 *\_Iyear\_1861 | 2.630502 . . . . .*

 *\_Iyear\_1862 | 2.833847 . . . . .*

 *\_Iyear\_1863 | 2.932203 . . . . .*

 *\_Iyear\_1864 | 3.015348 . . . . .*

 *\_Iyear\_1865 | 3.155064 . . . . .*

 *\_Iyear\_1866 | 3.369262 . . . . .*

 *\_Iyear\_1867 | 3.176586 . . . . .*

 *\_Iyear\_1868 | 3.172514 . . . . .*

 *\_Iyear\_1869 | 3.161265 . . . . .*

 *\_Iyear\_1870 | 2.739394 . . . . .*

 *\_Iyear\_1871 | 2.033083 . . . . .*

 *\_Iyear\_1872 | 2.033083 . . . . .*

 *\_Iyear\_1873 | 2.024149 . . . . .*

 *\_Iyear\_1874 | 2.381416 . . . . .*

 *\_Iyear\_1875 | 2.559608 . . . . .*

 *\_Iyear\_1876 | 3.172679 . . . . .*

 *\_Iyear\_1877 | 3.665492 . . . . .*

 *\_Iyear\_1878 | 3.939954 . . . . .*

 *\_Iyear\_1879 | 3.89167 . . . . .*

 *\_Iyear\_1880 | 3.901536 . . . . .*

 *\_Iyear\_1881 | 3.533532 . . . . .*

 *\_Iyear\_1882 | 3.470718 . . . . .*

 *\_Iyear\_1883 | 3.285205 . . . . .*

 *\_Iyear\_1884 | 3.33808 . . . . .*

 *\_Iyear\_1885 | 3.357781 . . . . .*

 *\_Iyear\_1886 | 3.218485 . . . . .*

 *\_Iyear\_1887 | 2.950424 . . . . .*

 *\_Iyear\_1888 | 2.96565 . . . . .*

 *\_Iyear\_1889 | 3.005058 . . . . .*

 *\_Iyear\_1890 | 3.105164 . . . . .*

 *\_Iyear\_1891 | 3.219885 . . . . .*

 *\_Iyear\_1892 | 3.249861 . . . . .*

 *\_Iyear\_1893 | 3.172016 . . . . .*

 *\_Iyear\_1894 | 3.150867 . . . . .*

 *\_Iyear\_1895 | 3.052952 . . . . .*

 *\_Iyear\_1896 | 3.048216 . . . . .*

 *\_Iyear\_1897 | 3.081946 . . . . .*

 *\_Iyear\_1898 | 3.163679 . . . . .*

 *\_Iyear\_1899 | 3.120852 . . . . .*

 *\_Iyear\_1900 | 3.14275 . . . . .*

 *\_Iyear\_1901 | 3.070358 . . . . .*

 *\_Iyear\_1902 | 2.967574 . . . . .*

 *\_Iyear\_1903 | 2.909011 . . . . .*

 *\_Iyear\_1904 | 2.947285 . . . . .*

 *\_Iyear\_1905 | 2.896102 . . . . .*

 *\_Iyear\_1906 | 2.8428 . . . . .*

 *\_Iyear\_1907 | 2.805844 . . . . .*

 *\_Iyear\_1908 | 3.050583 . . . . .*

 *\_Iyear\_1909 | 2.843459 . . . . .*

 *\_Iyear\_1910 | 2.90592 . . . . .*

 *\_Iyear\_1911 | 2.840904 . . . . .*

 *\_Iyear\_1912 | 2.809333 . . . . .*

 *\_Iyear\_1913 | 2.798737 . . . . .*

 *\_cons | -2.033083 . . . . .*

*-------------------------------------------------------------------------------------*

**\* ROBUSTNESS TEST 9: Results with Flandreau and Zumer Gold Standard measure**

**Stata Command:**

xtreg avg\_spread Lavg\_spread cb war cb\_war comp /\*cent\*/ topitaxrate2 trade gdp lnpop growth urban internal\_disruption GS Default cw colwar year year2 year3 year4, re

**Regression Output**:

|  |  |
| --- | --- |
|  |  |
| Central Bank | 0.01 |
|  | (0.03) |
|  |
| Interstate War | 0.05 |
|  | (0.04) |
|  |  |
| Central Bank  | -0.11\*\* |
| X Interstate War | (0.05) |
|  |  |
|  |  |
|  Number of Observations  |  1,449  |

Note: Model includes random effects, time polynomial, and lagged dependent variable. Control variables are same as those used in Tables 3 and 4 in the main text. Results from control variables suppressed for ease of reading (available in replication packet).

**Marginal Effect (from Spread Model)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Effect | 0.95 CI (upper) | 0.95 CI (lower) |
| (Coefficient on Central Bank) + (Coefficient on Central Bank X Interstate War) | -0.10\* | 0.01 | -0.21 |

\* Significant at the 0.90 confidence level.

Note: Computed using the lincom command in Stata.

**Interpretation:**

*The Marginal Effect table shows that, even after using an alternative measure of the Gold Standard, central banks reduce the spread when the state is at war (though the effect is significant at the 0.90 confidence level, instead of the 0.95 confidence level).*

**\* ROBUSTNESS TEST 9: CORRELATION OF GFD TO FLAUDREAU AND ZUMER YIELD DATA.**

Flandreau and Zumer (2004) offer a dataset of yields for 17 countries over the 1880 to 1913 time period comprising of what they consider to be the most accurately and credibly recorded bond yields (see Flandreau and Zumer 2004, 105-106 for a listing of the bonds). While this is a smaller sample (both temporally and spatially), I estimate the correlation in the yields and spreads for countries and years found in both the GFD database and the Flandreau and Zumer database. I find the correlation to be 0.63 for yields and 0.81 for spreads (which is my primary variable of interests), thereby suggesting that the two datasets are capturing similar measurements.