War, International Finance, and State Capacity in the Long Run

Didac Queralt

Yale University

April 8, 2019
Argument

- **Book project:** “War, State Building, and Limited Government in the Era of International Finance.”
  - “The Legacy of War on Fiscal Capacity.” accepted at IO.
Argument

- **Book project**: “War, State Building, and Limited Government in the Era of International Finance.”
  - “The Legacy of War on Fiscal Capacity.” accepted at IO.

- **Argument**: Globalization of finance deters state building and political reform.
Argument

- **Book project:** “War, State Building, and Limited Government in the Era of International Finance.”
  - “The Legacy of War on Fiscal Capacity.” accepted at IO.

- **Argument:** Globalization of finance deters state building and political reform.

- **Focus on war**
  - Bellicist hypothesis: “states make war, and war make states.”
  - Little traction in the “periphery.”
Absence of War
Absence of War?

Figure: The Geography of Inter-State War in the Long-Nineteenth Century. Colors indicate the total number of years at war. Data source: Wimmer-Min 2009
War in the periphery was financed with external credit, and that distorted incentives to engage in short- and long-term state building.
External Finance and State Making

- War in the periphery was financed with external credit, and that distorted incentives to engage in short- and long-term state building.

- Building on Centeno 2002, I advance a PE of war financing that articulates
  1. Political costs of taxation vs. external loans
  2. Explanation for lack of Ricardian Equivalence
  3. Mechanism of transmission
War in the periphery was financed with external credit, and that distorted incentives to engage in short- and long-term state building.

Building on Centeno 2002, I advance a PE of war financing that articulates

1. Political costs of taxation vs. external loans
2. Explanation for lack of Ricardian Equivalence
3. Mechanism of transmission

Test for it addressing limitations of observational studies.
The Political Economy of War Financing
Tax-Financed War

- Taxes change the *physiology* of the state [Ardant 1975, Dincecco 2011]
  - Fiscal unification
  - New taxes, new rates
  - Bureaucratic efficiency

But new taxes come at a political cost [Bates-Lien 1984, Gennaioli-Voth 2015, Ferejohn-Rosenbluth 2016, Levi 1988]. Power-sharing institutions were the price and outcome of bargaining with different members of subject population in overcoming resistance to financing with taxation the means of war. [Tilly, 1990: 64]
Tax-Financed War

- Taxes change the physiology of the state [Ardant 1975, Dincecco 2011]
  - Fiscal unification
  - New taxes, new rates
  - Bureaucratic efficiency


  *Power-sharing institutions were the price and outcome of bargaining with different members of subject population in overcoming resistance to financing with taxation the means of war.* [Tilly, 1990: 64]
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]

- **External loans:**
  - Debt relief
  - Debt-equity swaps
    - Debt relief and exchange of war debt for nontax revenue preclude the Ricardian Equivalence.
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]

- **External loans:** minimize political costs.
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]

- **External loans**: minimize political costs. Plus:
  - Certainty about funds
  - Smooth allocation decisions
Loan-Financed War

- **Domestic loans** come with political concessions too [North-Weingast 1989]

- **External loans**: minimize political costs. Plus:
  - Certainty about funds
  - Smooth allocation decisions

- **Effect on fiscal capacity is uncertain**
  - Commitment problem in repayment
  - Default settlements weaken incentives to enhance fiscal capacity
    - Debt relief
    - Debt-equity swaps
Loan-Financed War

► Domestic loans come with political concessions too [North-Weingast 1989]

► External loans: minimize political costs. Plus:
  ○ Certainty about funds
  ○ Smooth allocation decisions

► Effect on fiscal capacity is uncertain
  ○ Commitment problem in repayment
  ○ Default settlements weaken incentives to enhance fiscal capacity
    - Debt relief
    - Debt-equity swaps
  ○ Debt relief and exchange of war debt for nontax revenue preclude the Ricardian Equivalence.
Empirical Implication

The more war is financed with taxes relative to loans, the stronger the effect of war on long-term fiscal capacity
Access to credit and incentives to tax: An example

Figure: War, external loans, and taxes in Chile Area in gray: wars fought while being in default; Area in yellow: wars fought while having access to external lending
Access to credit and incentives to tax: An example

Figure: War, external loans, and taxes in Chile Area in gray: wars fought while being in default; Area in yellow: wars fought while having access to external lending
Access to credit and incentives to tax: An example

Figure: War, external loans, and taxes in Chile Area in gray: wars fought while being in default; Area in yellow: wars fought while having access to external lending
Access to credit and incentives to tax: An example

Figure: War, external loans, and taxes in Chile Area in gray: wars fought while being in default; Area in yellow: wars fought while having access to external lending
Access to credit and incentives to tax: An example

Figure: War, external loans, and taxes in Chile Area in gray: wars fought while being in default; Area in yellow: wars fought while having access to external lending
Design

- Focus on 19th century: Pervasive warfare + Massive international lending:
  - 19th century witnesses the first global financial market [Neal 1990, Taylor 2006]
  - “Lending frenzy”: International capital flows 3X larger in 1880-1914 than 1980s, scaled by world economy [Bordo 2006]
Focus on 19th century: Pervasive warfare + Massive international lending:

- 19th century witnesses the first global financial market [Neal 1990, Taylor 2006]

- “Lending frenzy”: International capital flows 3X larger in 1880-1914 than 1980s, scaled by world economy [Bordo 2006]

- High liquidity resulted in unprecedented low spreads, also for countries in the “periphery”
  - I document lending frenzy with an original dataset of 450+ sovereign loans, 1816-1913

Interest Rates
Design

- Data: 106 countries and 174 inter-state wars, 1816-1913.

- Does war financed with taxes (loans) increase (decrease) long-term tax capacity?
Design

- Data: 106 countries and 174 inter-state wars, 1816-1913.
- Does war financed with taxes (loans) increase (decrease) long-term tax capacity?
- Threats to inference:
  1. I exploit repeated yet unanticipated global credit crunches as exogenous source of credit access.
  2. I address endogenous war participation threefold: ongoing war, noninitiators, reduced-form.

Empirical Model
Results

1. The Long-Run (circa 2000s):

▶ A one-standard deviation in # years at war while lacking access to external finance in the nineteenth century increases long-run tax capacity (PIT/GDP) by 11% points.

▶ Nineteenth-century war waged while having access to external finance does not increase long-run tax capacity, and may be detrimental.
Results

1. The Long-Run (circa 2000s):
   ▶ A one-standard deviation in # years at war while lacking access to external finance in the nineteenth century increases long-run tax capacity (PIT/GDP) by 11% points.
   ▶ Nineteenth-century war waged while having access to external finance does not increase long-run tax capacity, and may be detrimental.

2. The Short-Run (by 1913): War finance effects on state capacity on the eve of WWI are similar.
Results

1. The Long-Run (circa 2000s):
   ▶ A one-standard deviation in \# years at war while lacking access to external finance in the nineteenth century increases long-run tax capacity (PIT/GDP) by 11% points.
   ▶ Nineteenth-century war waged while having access to external finance does not increase long-run tax capacity, and may be detrimental.

2. The Short-Run (by 1913): War finance effects on state capacity on the eve of WWI are similar.

3. Intermediate Effects: Decennial models from 1945-1995 are similar.
Mechanism of Transmission

- Raising taxes implies political concessions, namely power-sharing institutions.

- Power-sharing institutions transform taxation into a nonzero sum game [Levi 1988, Besley-Persson 2011], thus carrying on the effect of war in the long-run.
Mechanism of Transmission

- Raising taxes implies political concessions, namely power-sharing institutions.

- Power-sharing institutions transform taxation into a nonzero sume game [Levi 1988, Besley-Persson 2011], thus carrying on the effect of war in the long-run.

- Access to international finance precludes such a tax bargain/fiscal contract
Mechanism of Transmission

Figure: The Effect of War Finance from 1816 to 1913 on Executive Constraints in the Short (1913) and Long Run (2000s).
Mechanism of Transmission

(a) Short-Run Effects

Figure: The Effect of War Finance from 1816 to 1913 on Executive Constraints in the Short (1913) and Long Run (2000s).
Mechanism of Transmission

(a) Short-Run Effects

- Marginal Effect on Executive Constraints in 1900-1913
- Marginal Effect of Years at War between 1820 and 1913 while Credit Flows
- Marginal Effect of Years at War between 1820 and 1913 while Credit Stops

(b) Long-Run Effects

- Marginal Effect on Executive Constraints in 1995-2005
- Marginal Effect of Years at War between 1820 and 1913 while Credit Flows
- Marginal Effect of Years at War between 1820 and 1913 while Credit Stops

Figure: The Effect of War Finance from 1816 to 1913 on Executive Constraints in the Short (1913) and Long Run (2000s).

- State-making is endogenous to international credit markets

- State-making is endogenous to international credit markets
  - Scope conditions of bellicist hypothesis are updated to a context of global credit

- **State-making is endogenous to international credit markets**
  - Scope conditions of bellicist hypothesis are updated to a context of global credit

- **International credit undermines the association between war-finance and power-sharing institutions**
  - External loans preclude political compromise between rulers and domestic elites

- **State-making is endogenous to international credit markets**
  - Scope conditions of bellicist hypothesis are updated to a context of global credit

- **International credit undermines the association between war-finance and power-sharing institutions**
  - External loans preclude political compromise between rulers and domestic elites
  - Results elucidate a *cheap credit curse*, producing perverse effects similar to oil, foreign aid, and ore from colonies
Back Up Slides
PE of War Finance: Incumbent’s Decision Rule

- Ruler’s present discounted value of taxing:

\[ \kappa T - W - c_t + \delta \left[ (\kappa + \eta) T - c_t \right] \]
PE of War Finance: Incumbent’s Decision Rule

▶ Ruler’s present discounted value of taxing:
\[
\kappa T - W - c_t + \delta \left[ (\kappa + \eta) T - c_t \right]
\]

▶ Ruler’s present discounted value of borrowing:
\[
L - W - c_I + \delta \left[ (1 - d)(\kappa T - (1 + i)L - c_t) - d\beta \right]
\]

... with \( i = r + p \):

- \( r \) is the interest rate of a risk-free sovereign bond (e.g. the British Consol), and
- \( p = \frac{(1+r)d}{1-d} \), \( \partial p / \partial d > 0 \) (Tomz 2007)
PE of War Finance: Incumbent’s Decision Rule

- Decision rule

\[ L \geq \frac{\kappa T - \Delta c + \delta [\eta T + d(\kappa T - c_t + \beta)]}{1 - \delta(1 + r^*)} \]

with \( r^*, \frac{\partial r}{\partial d} > 0 \), endogenously set in the bond market.
PE of War Finance: Incumbent’s Decision Rule

Decision rule

\[ L \geq \frac{\kappa T - \Delta c + \delta [\eta T + d(\kappa T - c_t + \beta)]}{1 - \delta(1 + r^*)} \]

with \( r^* \), \( \partial r / \partial d > 0 \), endogenously set in the bond market.

1. \( \kappa \): The lower initial capacity
2. \( \Delta c \): The weaker initial power-sharing institutions
3. \( \delta \): Short time horizons
4. \( r^* \): High liquidity in international markets
5. \( \beta \): Mild default sanctions
Interest Rates Over Time

Interest Rate (Nominal)

13th 14th 15th 16th 17th 18th 19th 20th
Interest Rates in the 19th c. by Region

Figure: Premia < 1.5% (N=468 sovereign loans, 1816-1913)
Sudden-Stops of Credit: An Illustration

Figure: British Capital Exports from 1865 to 1914, the banking panics of 1865, 1873, and 1890 (in gray), and the stock crisis of 1910 (in yellow).
Modeling Long-Term Fiscal Capacity

- Cross-sectional variation

\[ y_i = \alpha_i + \beta_1(\#\text{years at war in 1816-1913} \mid \text{credit stops}) + \beta_2(\#\text{years at war in 1816-1913} \mid \text{credit flows}) + X_i\delta + \gamma + \rho + \epsilon_i \]

- where access to credit is uncorrelated to (un)observables,

- \( y_i \in \{\text{PIT, VAT, TaxStaff}\} \) circa 2000,

- \( X_i \) a vector of initial characteristics, and \( \delta \) and \( \gamma \), region and colonial origins FE, respectively,

- and expectations: \( \beta_1 > 0, \beta_2 \leq 0 \)
Table: Personal Income Tax to GDP today as a function of War and Exogenous Access to Credit in the Long-Nineteenth Century

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td># years at war 1816-1913 while credit stops</td>
<td>0.273***</td>
</tr>
<tr>
<td></td>
<td>(0.056)</td>
</tr>
<tr>
<td># years at war 1816-1913 while credit flows</td>
<td>-0.200***</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
</tr>
<tr>
<td>Baseline Controls</td>
<td>Yes</td>
</tr>
<tr>
<td>Colonial Origins FE</td>
<td>Yes</td>
</tr>
<tr>
<td>Region FE</td>
<td>Yes</td>
</tr>
<tr>
<td>Average PIT/GDP</td>
<td>2.99</td>
</tr>
<tr>
<td>Observations</td>
<td>106</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.551</td>
</tr>
</tbody>
</table>

Britain excluded. Baseline Controls are: Population density as of 1820, oil production, access to sea, and desert territory. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.
Selection into War

- Focus on wars that are **initiated** while the market is lending and, eventually, dries as a result of a sudden-stop
Selection into War

- Focus on wars that are **initiated** while the market is lending and, eventually, dries as a result of a sudden-stop

1. These wars that are initiated *without* the expectation of a credit-dry
2. This strategy addresses the “what type of war to fight” concern
### Table: Ongoing Wars. Models of PIT as % of GDP in the Long Run, with Special Attention to Anticipation Issues

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td># Years at War while Credit Stops</td>
<td>0.130**</td>
<td>0.124**</td>
</tr>
<tr>
<td></td>
<td>(0.054)</td>
<td>(0.053)</td>
</tr>
<tr>
<td># Years at War while Credit Flows</td>
<td>-0.082</td>
<td>-0.079</td>
</tr>
<tr>
<td></td>
<td>(0.080)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>Initial State Capacity</td>
<td>Census</td>
<td>Antiquity</td>
</tr>
<tr>
<td>Great Power FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Baseline Controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Colonial Origins FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Region FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>106</td>
<td>103</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.583</td>
<td>0.617</td>
</tr>
</tbody>
</table>

Baseline Controls are: Population density as of 1820, oil production, access to sea, and desert territory. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Short-term Effects

Figure: Probability of Having Conducted a Modern Census by 1913 as a function of Warfare and Access to Credit.
Short-term Effects

Figure: Probability of Having Conducted a Modern Census by 1913 as a function of Warfare and Access to Credit.
Short-term Effects

Figure: Probability of Having Conducted a Modern Census by 1913 as a function of Warfare and Access to Credit.
Transmission

**Figure:** Marginal effect of # Years at War with and without access to External Credit between 1820 and 1913 on Non-Trade Tax Revenue from 1945 to 1995 (decennial averages).
Transmission

Figure: Marginal effect of \# Years at War with and without access to External Credit between 1820 and 1913 on Non-Trade Tax Revenue from 1945 to 1995 (decennial averages).
Figure: Marginal effect of # Years at War with and without access to External Credit between 1820 and 1913 on Non-Trade Tax Revenue from 1945 to 1995 (decennial averages).