Fiscal Discrimination in Three Wars

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Two Data Points

1. 1789: a U.S. paper dollar is held in disrepute
   - 'not worth a Continental'
2. 1879: a U.S. paper dollar is as good as gold.

How did the U.S. go from 1 to 2?

Three Wars

1. American Revolution (1775-1783)
   - funded with seignorage and loans
   - 1790 refunding: haircuts, heavy discrimination
2. War of 1812
   - debt financed at huge cost
   - resisted the temptation use seignorage
3. Civil War (1861-1865)
   - debt financed
   - two currencies: lawful money and coin.
   - Grant makes lawful money as good as gold

Three Models on the Table

1. Gallatin-Barro Model of Tax Smoothing (risk-free government debt)
2. Lucas-Stokey Model of State-Contingent Government Debt
3. Bryant-Wallace Model of Discrimination

Foundation of all three is the government budget constraint

$$B_{t+1} = (1 + r)B_t + G_t - T_t - \frac{M_{t+1} - M_t}{P_t}$$

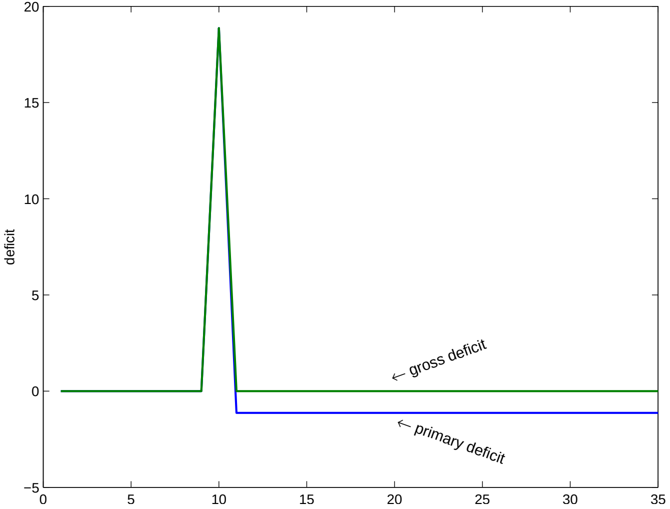
Gallatin-Barro Tax Smoothing

Albert Gallatin's (1807) *Annual Report* recommended that during a war, tax rates should be set to

> *provide a revenue at least equal to the annual expenses on a peace establishment, the interest on the existing debt, and the interest on the loans which may be raised. . . . losses and privations caused by war should not be aggravated by taxes beyond what is strictly necessary.*

- Barro (1979) and AMSS (2002)

Deficits Under Tax Smoothing



Lucas-Stokey (1983) Model With State-Contingent Debt

- The government wants to keep the marginal cost of distortionary taxes constant through time and across states.
- Returns on debt absorb the impact of fiscal shocks
  - perhaps through inflation and deflation.

High Expenditures $\longrightarrow$ low (negative) returns

Low Expenditures $\longrightarrow$ high returns

- Taxes are constant

Bryant-Wallace (1984)

Price discrimination as an explanation for paying different returns on bonds and money.

- Bonds
  - pay interest
  - difficult to use as means of exchange
    - large minimum denominations
    - often physically large
    - transferable, but payable to an individual
- Money
  - usually non-interest bearing
  - easy to use as means of exchange
    - small minimum denominations
    - often physically small
    - payable to the bearer

Funding the American Revolution

- Terms on the right side of the government budget constraint
  1. taxes
  2. loans
  3. seignorage

- Between 1775 and 1781, the Continental Government spent $85 million
  - $7 million in taxes, gifts, sales of public goods, ...
  - raised $40 million in seignorage
  - accrued $41 million in debt and unpaid interest
    - promised 6% interest

Continental Dollars

Continental Dollar

- 'bills of credit'
- first issued on June 22, 1775
  - initially traded near parity with Spanish milled dollar
- But rapid emissions
  - by December 1776 $25,000,000 outstanding
  - by November 1779 $199,990,000 outstanding
- Price level rose quickly
- In March 1780, Continental Congress accepted 40 Continental dollars for one 1 Spanish dollar
- By 1789, $80,000,000 outstanding

U.S. Under the Articles of Confederation

- Continental government had no power to tax, but was liable for its debts
- 1784
  - owed \$2 million in scheduled interest payments,
  - received \$723,000 in revenue
- set spending = revenues
  - deferred interest payments
- Unpleasant monetarist arithmetic
  - 1781 to 1789, unpaid interest: \$871,000 $\longrightarrow$ \$14,231,000.

Resolution of Fiscal Crisis

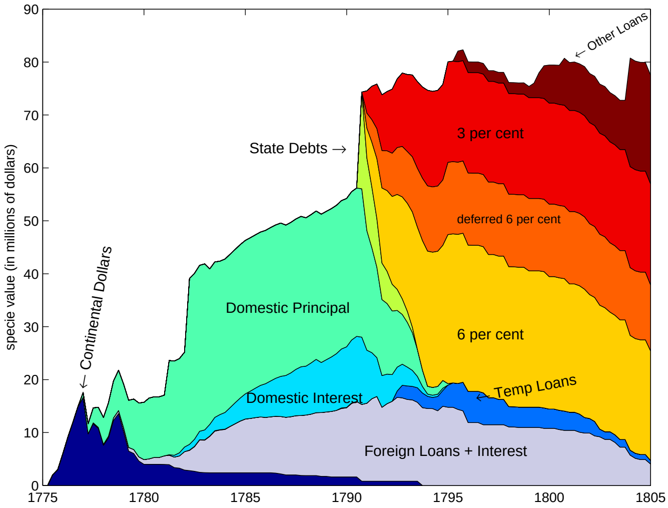
- 1789: U.S. Constitution transferred customs revenue to the federal government
  - silent on the federal government's power to issue fiat money
- Funding Act of 1790: designed by Alexander Hamilton
  - Government issued three consols

1. Six per cent stock – paying 6% interest.
2. Deferred six per cent stock – paying no interest until 1801, then 6% afterwards
3. Three per cent stock – paying 3% interest

Funding Act of 1790: Exchange Ratios

Domestic Federal Debt	$\nearrow$	2/3	6 per cent stock
	$\searrow$	1/3	def 6 per cent stock
Indents of Interest	$\longrightarrow$		3 per cent stock
State Debts	$\nearrow$	4/9	6 per cent stock
	$\longrightarrow$	2/9	def 6 per cent stock
	$\searrow$	3/9	3 per cent stock
Continental Dollar	$\longrightarrow$	1/100	dollar in specie

Federal Debt by Type Loan



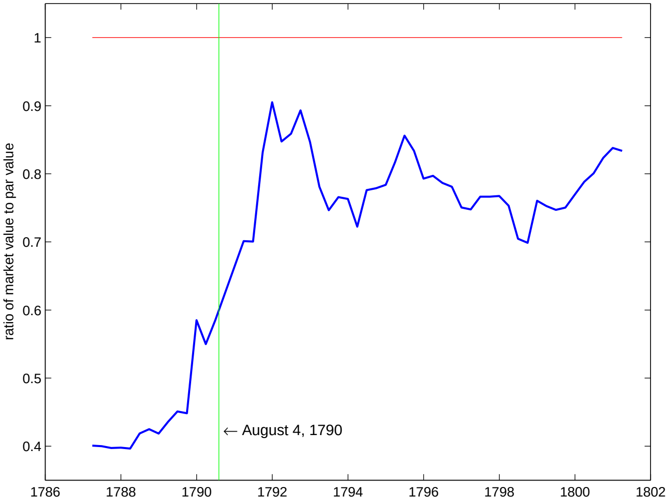
Hamilton Haircuts

Continental Loan	Market Value of Exchanged Assets
loan office certificate	\$75.00
interest in arrears	\$45.00
state debt (principal or interest)	\$65.00
Continental dollars	\$1.00

Market Value of Exchanged Assets for
\$100 of Face Value of a Continental Security

Garber (1991): French creditors received 80 cents on the dollar and Dutch creditors were made whole.

Ratio of Market Value to Par Value of the Debt



Legacy of Hamilton

- Was Hamilton the paragon of financial responsibility?
- Was Hamilton the author of massive discriminations and repudiations?
- Holders of Continental Dollars were not grateful
  - U.S. Constitution does not explicit deny the right to issue fiat money, but
  - Hamilton poisoned the reputation

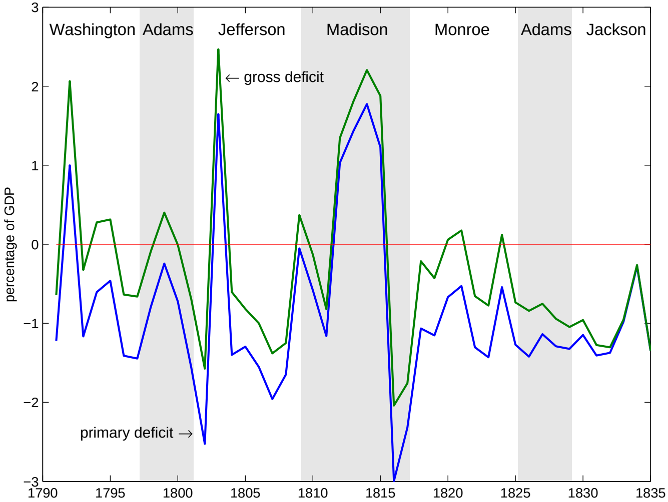
War of 1812

- Tax revenues collapse
  - at war with primary trading partner
  - no machinery to collect internal revenue
  - Washington D.C. burned in August 1814
- Difficult to make long term loans
  - 1813: Treasury sold bonds at 12% discount
  - 1814: Treasury sold bonds at 20% discount
- Short-term, money-like, borrowing
  - no central bank
  - resort to issue Treasury notes

Treasury Notes

- Issued with the understanding that they may circulate as a medium of exchange.
  - thus provided a mechanism for seignorage
- One-year loans, paying $5\frac{2}{5}\%$
- Max \$25 million outstanding
- Never made legal tender
- 1817: Issuing Treasury Notes considered an "embarrassment"

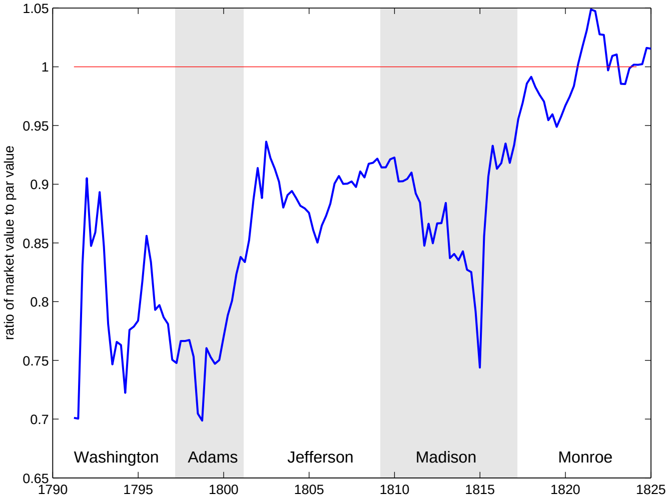
Federal Gross and Primary Deficits as a Share of GDP



Legacy of the War of 1812

- Bondholders who stuck with the U.S. earned fantastic returns
  - 1815: 45.1%
  - 1816: 20.7%
  - 1817: 20.9%
  - no defaults, even to British creditors
- U.S. government refrained from using the inflation tax.
  - Treasury notes held their value and paid off in full
- Soon after the war, U.S. Treasury securities consistently traded at par for the first time in U.S. history.

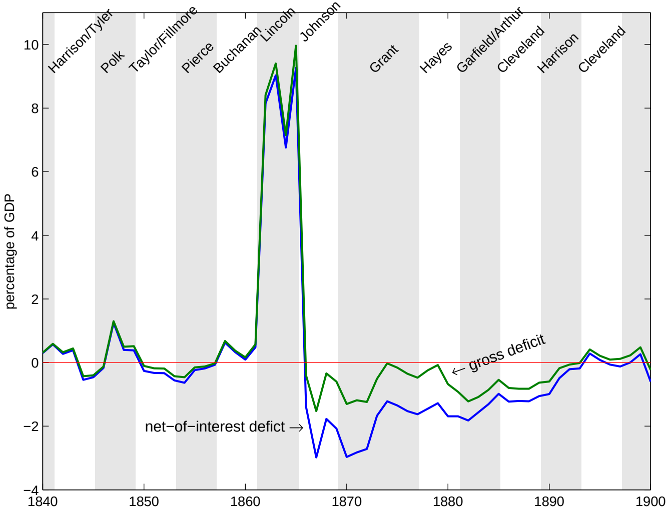
Ratio of Market Value to Par Value of the Debt



Civil War

- Budget deficits of 10% of GDP
  - lost about 1/3 of the tax base
- Host of new taxes
  - first federal income tax
  - 1862 taxes account for only 10% of expenditures
  - for every $1 raised in taxes, borrowed $3.59.
- Heavy initial reliance on short term debt
  - high interest rates

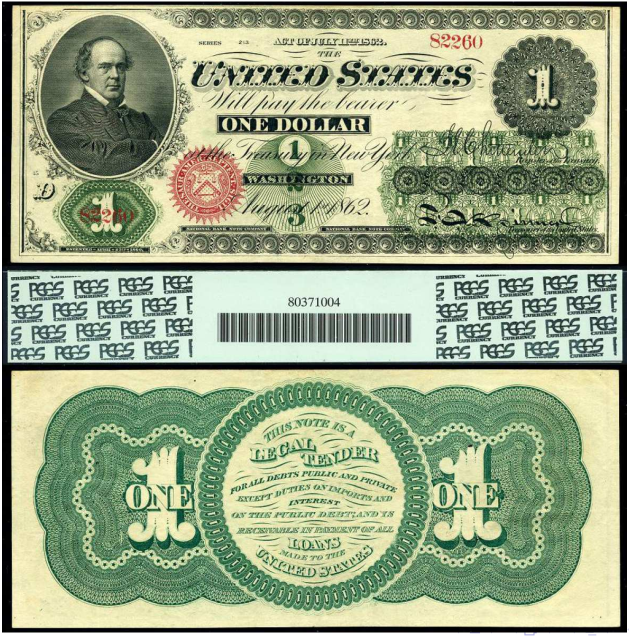
Gross and Primary Deficits as a Share of GDP



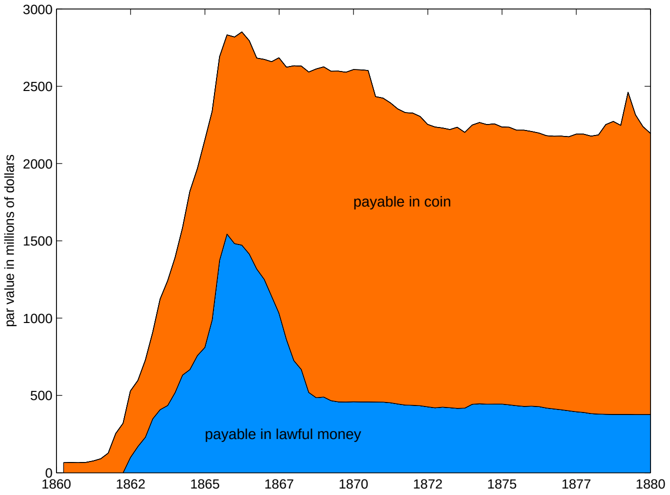
Issuance of the Legal Tender Notes

- February 1862 Congress authorizes issuance of non-interest-bearing notes
  - legal tender notes: known as ‘lawful money’ or ‘greenback’
- Union soldiers were paid in legal tender notes.
- Creation of two types of dollars: ‘lawful money’ and ‘coin’
  - trade between the two dollars soon began
  - By the summer of 1864, ‘lawful money’ had lost 60% of its value

Legal Tender Notes



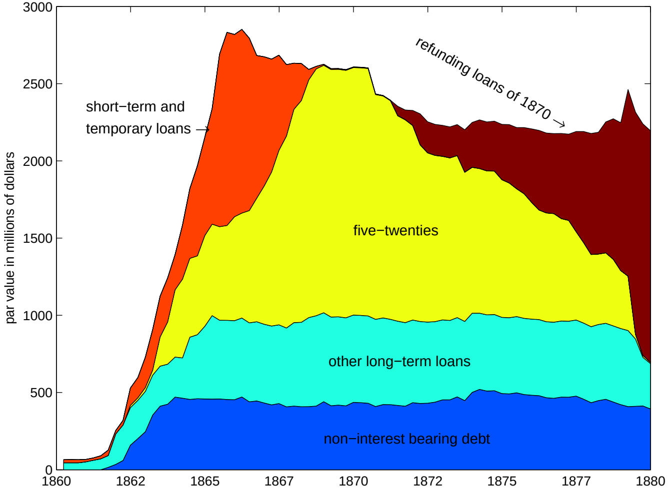
Debt Payable in Lawful Money and in Coin



The 5-20 loans

- First authorized in February 1862
    - 20 year bonds
    - callable after 5 years
    - 6 percent coupon rate
- Coupons paid in coin. Congress failed to state whether the principal would be paid in coin or lawful money.

Debt by Type of Loan



Post War

- Debt: about 35% of GDP
  - Tax revenue: 4 to 5% of GDP
- Considerable scope for discrimination
- In 1868 gold is trading at 40% premium to the greenback.
- What was the Legacy of 1790 (i.e. WWHD?, WWBWD?)
  - Lower the interest rate through discrimination and repudiation?
  - Honor the implicit and explicit promises of the past?
- What was the Legacy of 1815?

Payment of Principal in Coin or Lawful Money?

Various plans have been proposed for the payment of the public debt. However they may have varied as to the time and mode in which it should be redeemed, there seems to be a general concurrence as to the propriety and justness of a reduction in the present rate of interest. . . . The lessons of the past admonish the lender that it is not well to be over-anxious in exacting from the borrower rigid compliance with the letter of the bond.

President Andrew Johnson

1868 State of the Union Address

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Election of 1868

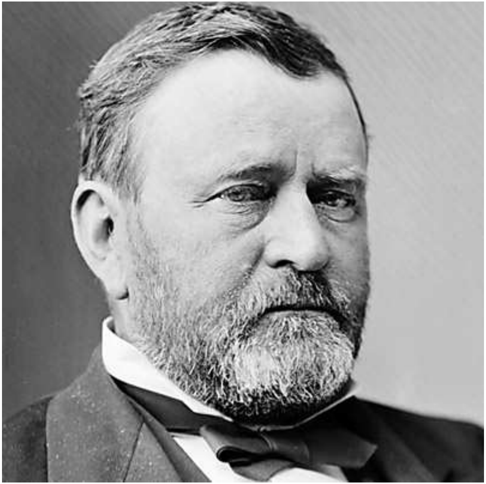
- Planks of Democratic Party Platform

  3. pay off the debt in lawful money
  4. tax the bondholders

- Plank of Republican Party Platform

  3. pay off the debt in coin

Grant's Victory



The voters elected the Republicans.

Grant sets the stage to redeem *all* the debt at par

- An Act to Strengthen the Public Credit
  - Passed on March 18, 1869
- Results in large real returns to bondholders. From 1866 to 1875:
  - the average government creditor received 10.2% per year.
  - 5-20s owners received 11.7% per year.
- The high returns to bondholders did not come at the expense of holders of paper money.
  - June of 1868, it took 140 greenbacks to buy $100 gold dollars, but
  - "Deflation is assumption"
- By the end of 1878, the two currencies traded at par.

Summing Up

- What was the legacy of Alexander Hamilton?
  - Partial repudiator who could be used by Andrew Johnson as a model?
  - A debt redeemer who could be used by Ulysses S. Grant as a model?
- How did U.S. paper dollars go from disrepute to ‘as good as gold’ in 90 years?
  - The American Revolution and 1790: depreciation, discrimination, and poison
  - War of 1812 and James Madison: recuperation
  - Civil War and Ulysses S. Grant: rehabilitation