

Revisiting Inflation in the American Civil War

Alternative Explanations Beyond Money Supply
Growth

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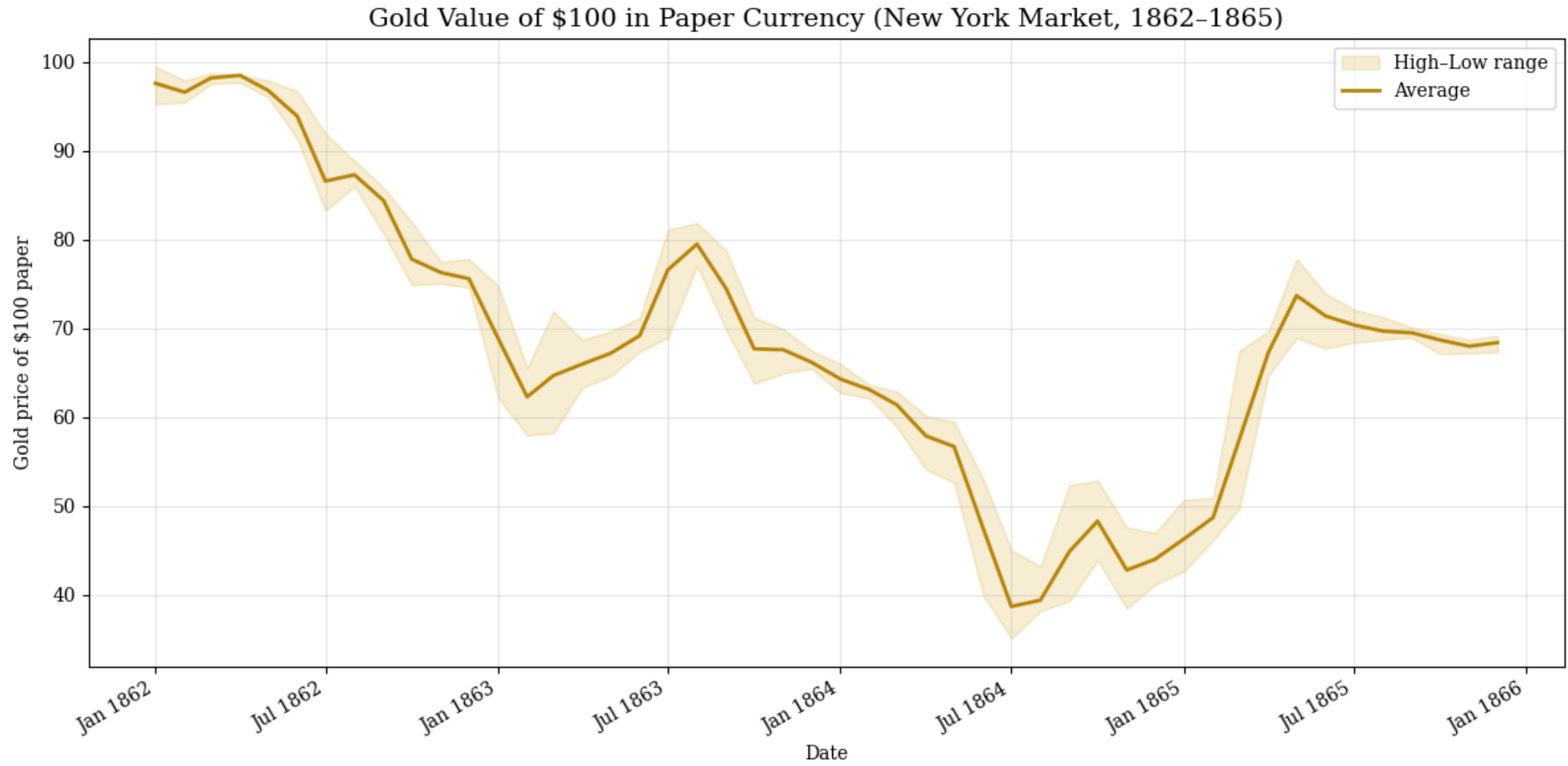
Research question

- How does Union money growth affect the value of greenbacks?
- Do changes in greenback value pass through to Northern prices?
- How did the inflation transmission mechanism work?

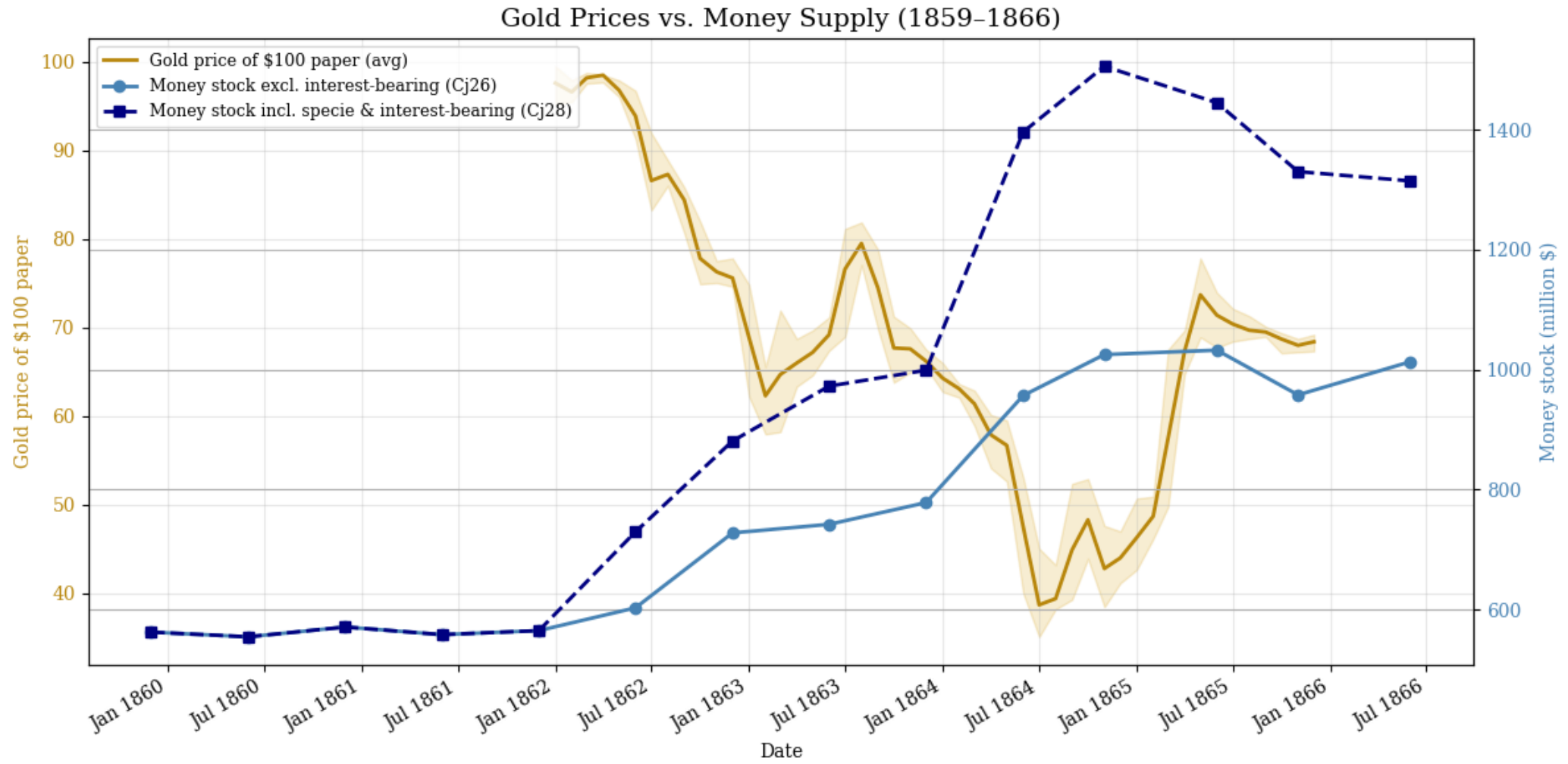
Contribution (lit')

- Mitchell (1903): economic analysis and data
- Williard, Guinnane, and Rosen (1996): wartime turning points
- Smith and Smith (1997): gold premium as expectations of resumption
- Auerbach and Hauptert: failure of money multiplier
- Proposal here: whether money growth affected Northern prices mainly through greenback valuation

Gold premium



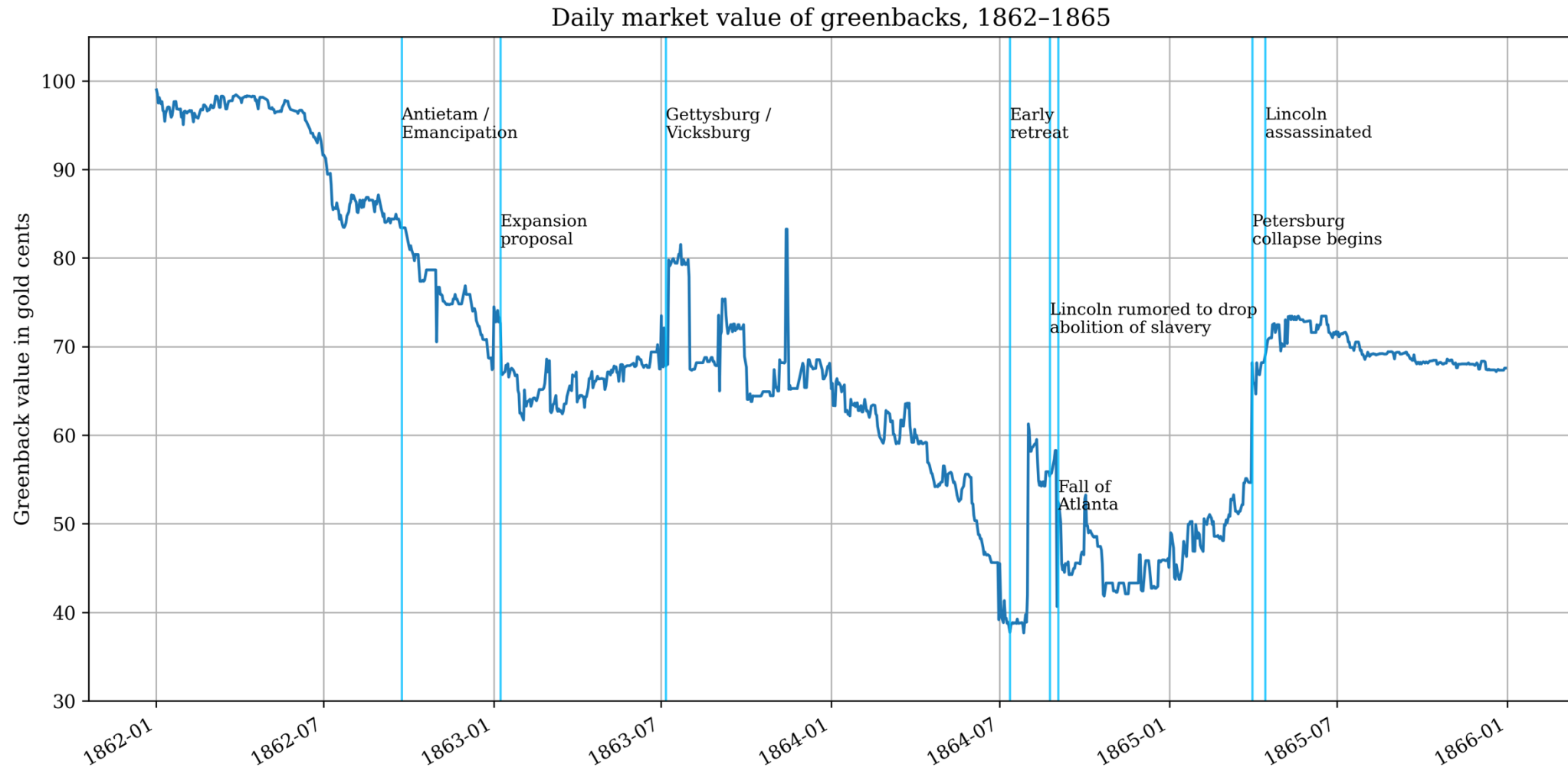
Money supply



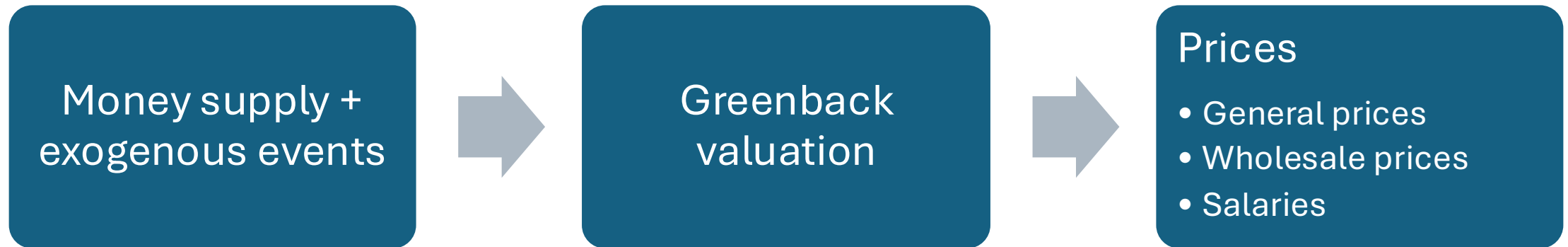
Which money supply?

| | | | Cj26 ² | Cj27 ² | Cj28 ² | Cj29 | Cj30 | Cj31 | Cj32 | Cj33 | Cj34 | Cj35 | Cj36 | Cj37 | Cj38 | Cj39 | Cj40 | Cj41 |
|-----|------|-------|-------------------------------------|-------------------------------------|--|------------------------------------|----------------------|---------------------|------------------------|--------------------|----------------------------|--------------------|--------------------|---------------------|---|--------------------|--------------------|--------------------------------------|
| | | | Stock of money | | | Specie (money in the form of coin) | | | | Paper money | | | | | Deposits (excluding interbank deposits) | | | |
| | | | Excluding specie | | Including specie and interest-bearing currency | Total stock | Held by the Treasury | Held by state banks | Held by national banks | Held by the public | Government currency issues | | Bank notes | | Held by the public | At state banks | At national banks | Adjusted deposits held by the public |
| Row | Year | Month | Excluding interest-bearing currency | Including interest-bearing currency | | | | | | | Non-interest-bearing | Interest-bearing | From state banks | From national banks | | | | |
| | | | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars | Million dollars |
| 1 | 1859 | Dec | 562.1 | 562.1 | 562.1 | 237.0 | 4.3 | 83.6 | --- | 149.1 | --- | --- | 207.1 | --- | 181.6 | 253.8 ⁴ | --- | 231.4 |
| 2 | 1860 | June | 554.2 | 554.2 | 554.2 | 235.0 | 3.9 ⁴ | 85.0 ⁵ | --- | 146.1 | --- | --- | 204.5 ³ | --- | 180.9 | 253.9 ³ | --- | 227.2 |
| 3 | 1860 | Dec | 570.6 | 570.6 | 570.6 | 259.2 ³ | 2.8 ³ | 87.7 | --- | 168.8 ⁵ | --- | --- | 202.0 | --- | 180.1 | 254.0 | --- | 221.7 |
| 4 | 1861 | June | 557.9 | 557.9 | 557.9 | 286.0 | 2.0 ⁴ | 101.0 ⁵ | --- | 183.0 | --- | --- | 192.7 ³ | --- | 169.1 | 274.3 ³ | --- | 242.7 |
| 5 | 1861 | Dec | 564.6 | 564.6 | 564.6 | 291.0 ³ | 6.0 ³ | 102.1 | --- | 182.8 ⁵ | --- | --- | 183.8 | --- | 158.5 | 296.3 | --- | 260.3 |
| 6 | 1862 | June | 602.6 | 602.6 | 729.4 | 296.0 | 18.3 ⁴ | 101.0 ⁵ | --- | 176.7 | 149.6 | --- | 209.5 ³ | --- | 296.9 | 341.5 ³ | --- | 283.8 |
| 7 | 1862 | Dec | 727.6 | 727.6 | 881.0 | 283.2 ³ | 12.4 ³ | 101.2 | --- | 169.6 ⁵ | 248.0 ³ | --- | 238.7 | --- | 385.0 | 393.7 | --- | 320.6 |
| 8 | 1863 | June | 741.9 | 741.9 | 972.5 | 271.0 | 8.4 ⁴ | 50.8 | --- | 211.8 | 411.2 | --- | 163.4 | --- | 405.5 | 393.6 ³ | --- | 314.4 |
| 9 | 1863 | Dec | 778.2 | 778.2 | 999.1 | 240.3 ³ | 12.7 ³ | 29.7 ³ | --- | 197.8 ⁵ | 440.1 ³ | --- | 171.1 ³ | --- | 445.1 | 393.6 ³ | --- | 311.1 |
| 10 | 1864 | June | 956.9 | 1,125.4 | 1,396.7 | 213.0 | 19.3 | 17.4 ³ | --- | 176.3 ⁵ | 471.0 | 168.5 | 179.2 | 31.2 | 681.7 | 393.5 ³ | 119.4 | 421.7 |
| 11 | 1864 | Nov | 1,025.2 | 1,219.1 | 1,506.2 | 206.8 ³ | 26.5 ³ | 11.1 ³ | --- | 169.3 ⁵ | 464.9 ³ | 193.9 ³ | 163.1 ³ | 59.4 ³ | 685.6 | 393.5 | 208.9 ³ | 511.6 |
| 12 | 1865 | June | 1,032.5 | 1,268.6 | 1,445.4 | 198.5 | 41.2 | 5.9 ⁶ | 9.4 | 142.0 ⁵ | 456.6 | 236.1 | 142.9 | 146.1 | 646.4 | 237.0 ³ | 456.4 | 600.2 |
| 13 | 1865 | Nov | 957.9 | 1,159.9 | 1,330.5 | 188.8 ³ | 43.7 ³ | 3.5 ⁶ | 10.6 ³ | 131.0 ⁵ | 444.5 ³ | 202.0 ³ | 62.9 ³ | 192.1 ³ | 578.9 | 165.0 | 501.6 ³ | 559.0 |
| 14 | 1866 | June | 1,013.3 | 1,175.8 | 1,314.9 | 176.0 | 47.5 | 3.3 ⁶ | 12.6 | 112.6 ⁵ | 428.1 | 162.5 | 20.0 | 281.5 | 539.7 | 200.5 ³ | 572.4 | 614.2 |

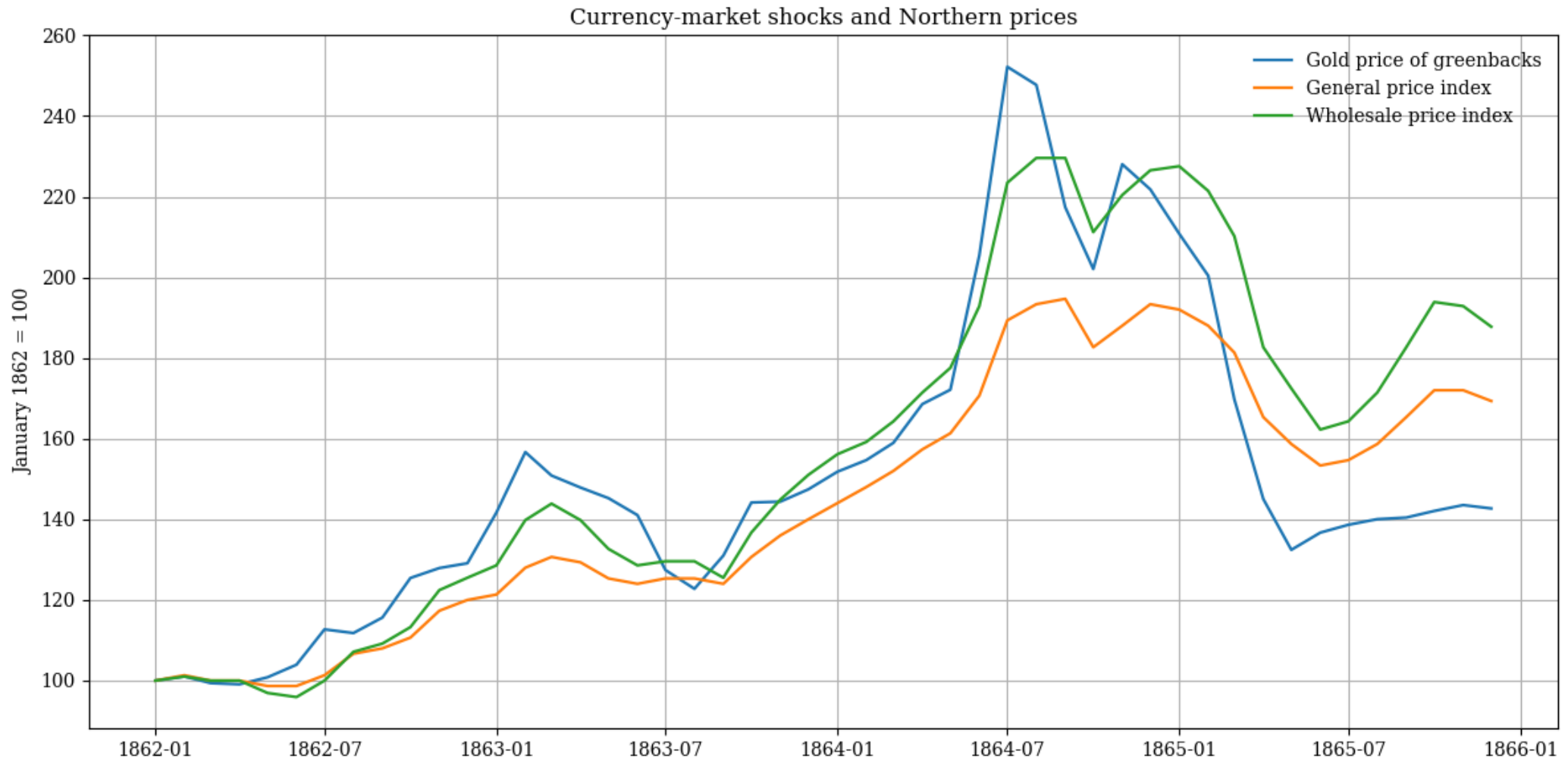
Non Ms-related events



Framework



Goods prices followed, but not one-for-one



Model

$$\Delta P_t = \alpha + \beta \Delta \log G_t + \varepsilon_t$$

$$\Delta P_t = \alpha + \beta_0 \Delta \log G_t + \beta_1 \Delta \log G_{t-1} + \beta_3 \Delta \log G_{t-2} + \varepsilon_t$$

- P_t general/wholesale price index
- G_t gold price of greenbacks

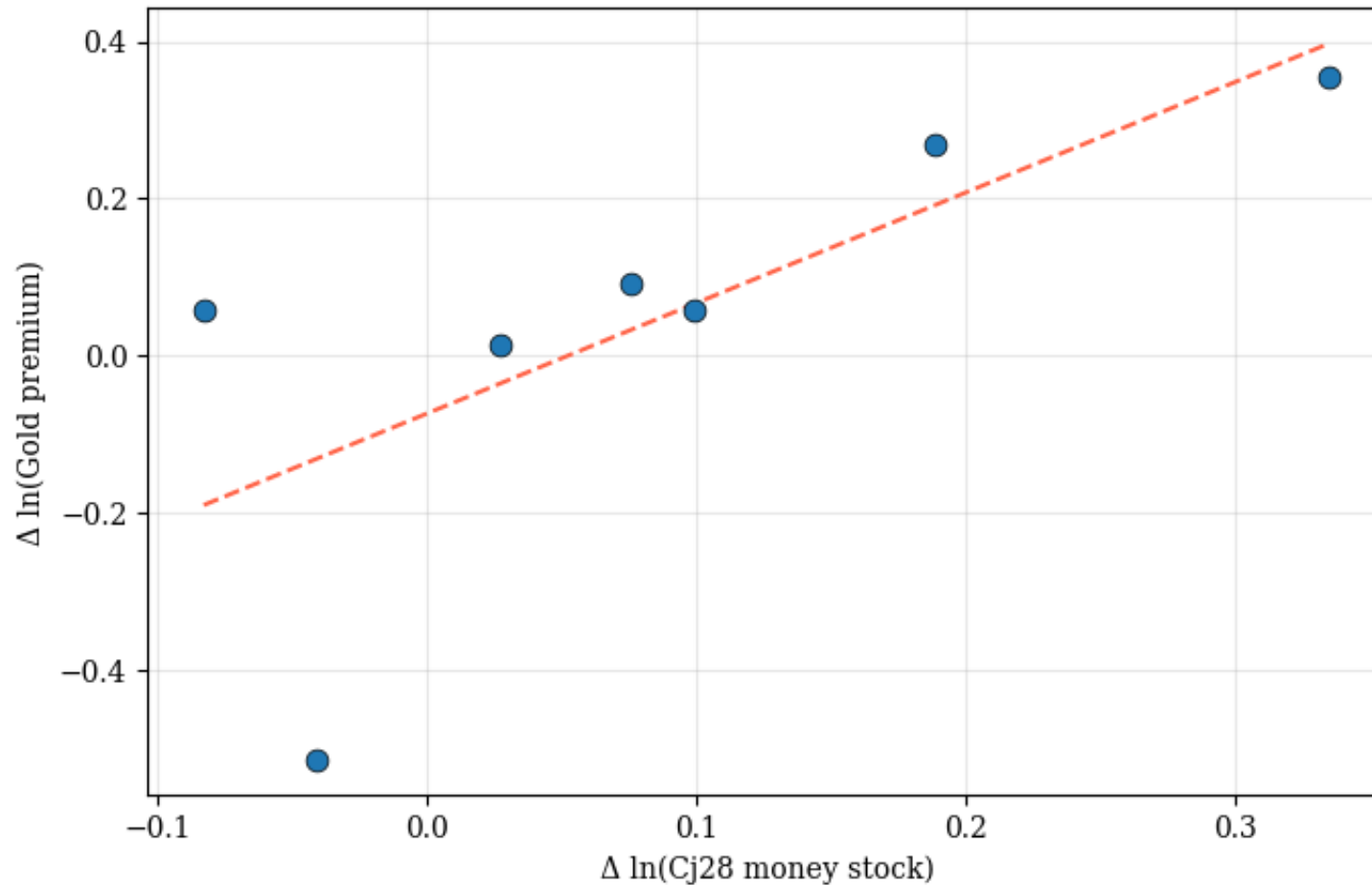
Results

| Dependent variable | Model | Delta ln G _t | Lag 1 | Lag 2 | Cum. 0-2 | N | R ² |
|-----------------------|----------|-------------------------|------------------|------------------|------------------|----|----------------|
| General price index | Contemp. | 0.326 (0.049) | | | 0.326 (0.049) | 47 | 0.483 |
| General price index | DL(0-2) | 0.227 (0.044) | 0.222 (0.065) | 0.065 (0.031) | 0.515 (0.040) | 45 | 0.745 |
| Wholesale price index | Contemp. | 0.481 (0.069) | | | 0.481 (0.069) | 47 | 0.479 |
| Wholesale price index | DL(0-2) | 0.348 (0.063) | 0.303 (0.092) | 0.110 (0.046) | 0.762 (0.058) | 45 | 0.721 |

Money supply regression

$$\Delta \ln G_t = \alpha_1 + a \cdot \Delta \ln M_t + \varepsilon_t$$

Semiannual OLS: Cj28 → Gold Premium
 $\beta = 1.407$ (SE = 0.643, p = 0.029), $R^2 = 0.519$, N = 7



Conclusions

- Money growth mattered
- Transmission mechanism through asset-market valuation of money
 - Market value of paper money as intermediate margin
- Inflation \neq gold premium
- Result match alternative explanations (e.g. Auerbach and Hauptert)

Data available: www.miguel.es

Future work

- Baron-Kenny mediation chain:
 - Money to gold premium
 - Price on gold premium + money (mediation test)
 - Price on money online (total effect)
- Regime-switching Markov model
 - Exogenous model for changes in v
- Relative prices analysis: data available