Colonial North Carolina's Paper Money Regime, 1712-1774: Value Decomposition and Performance

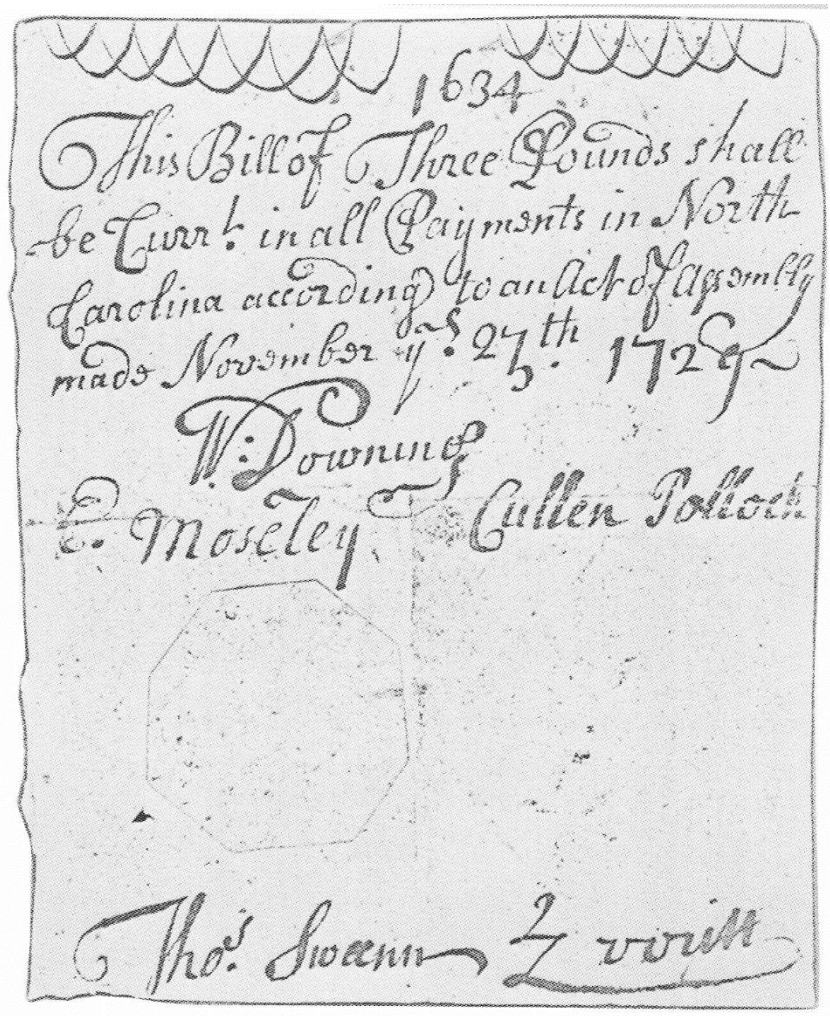
Farley Grubb and Cory Cutsail

Between 1712 and 1775, the North Carolina colonial assembly passed 18 separate paper money emission acts, authorizing a total of 264,234£$_{NC}$ in net new emissions of paper money. At face value, this money was set equal to 1.5£$_{NC}$ = 1£$_{sterling}$ before 1748 and 1.33£$_{NC}$ = 1£$_{sterling}$ after 1747. Between 1712 and 1775, the North Carolina assembly collected via taxes and debts owed 128,874£$_{NC}$ in face value. It destroyed the sums collected.

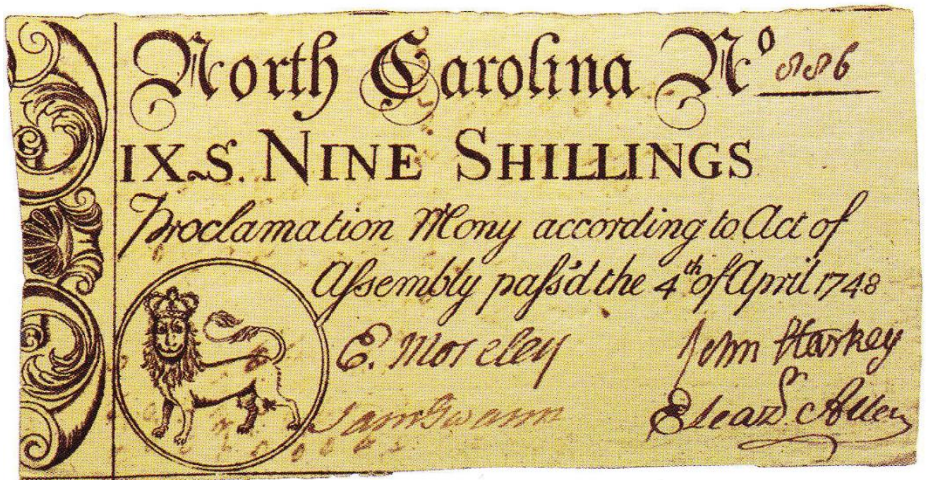
The systematic public burnings of paper money by the government:

In the Lower House of the North Carolina Assembly, Tuesday the 29th of November 1757: Resolved, That the said several Sums be burnt at four o'clock this Afternoon at the House of Richard Cogdell and the following message be sent to the Council (Vizt)

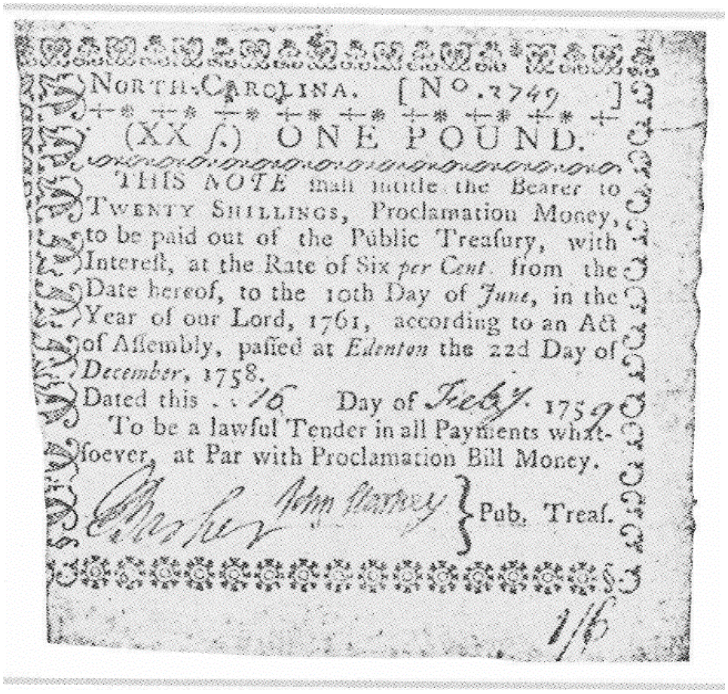
Gentlemen of His Majestys Honble Council
The Treasurers of this Province having paid into the Committee of Accounts the Sum of £2540 in Treasurers notes £61.0.0 of which not emitted, and that Thos Barker Esqr Treasurer of the Northern District hath paid into the said Committee the sum of £1051.15.11½ for the sinking fund, and John Starkey Esqr hath paid into the said Committee the sum of £934.17.5½ for the same fund, and this House have resolved that the said sums be burnt at four o'clock this Afternoon at the House of Richard Cogdell in New Bern Therefore desire your Honours will Appoint a Committee of your Board to Join this House to see the same done accordingly.



November 27, 1729 Bill (Emission #5): *Last of the Handwritten Emissions*



April 4, 1748 Bill (Emission #7)


NORTH-CAROLINA. [No. 3749]

(XX s.) ONE POUND.

THIS NOTE shall intitle the Bearer to TWENTY SHILLINGS, Proclamation Money, to be paid out of the Public Treasury, with Interest, at the Rate of Six *per Cent.* from the Date hereof, to the 10th Day of *June*, in the Year of our Lord, 1761, according to an Act of Assembly, passed at *Edenton* the 22d Day of *December*, 1758.

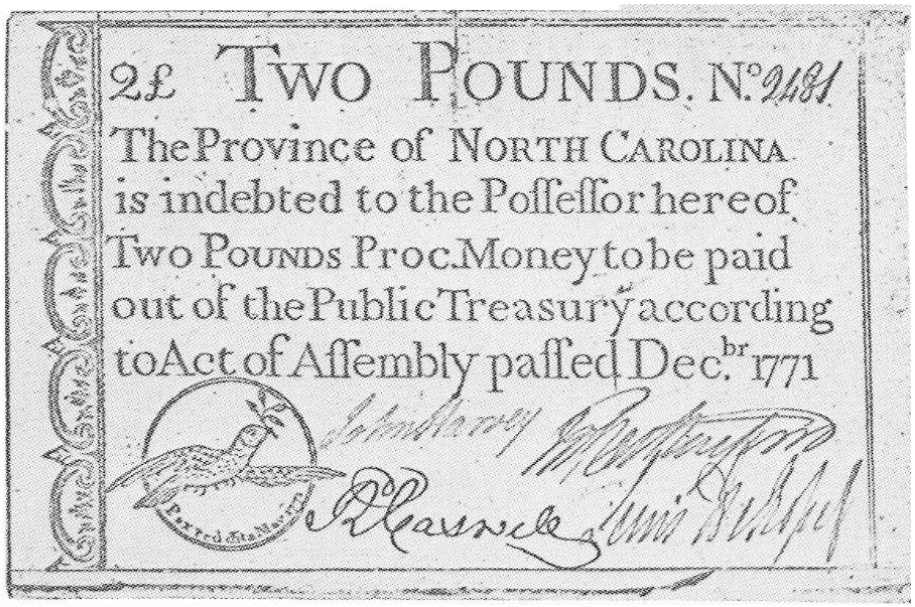
Dated this . . 16 Day of Feby. 1759

To be a lawful Tender in all Payments whatsoever, at Par with Proclamation Bill Money.

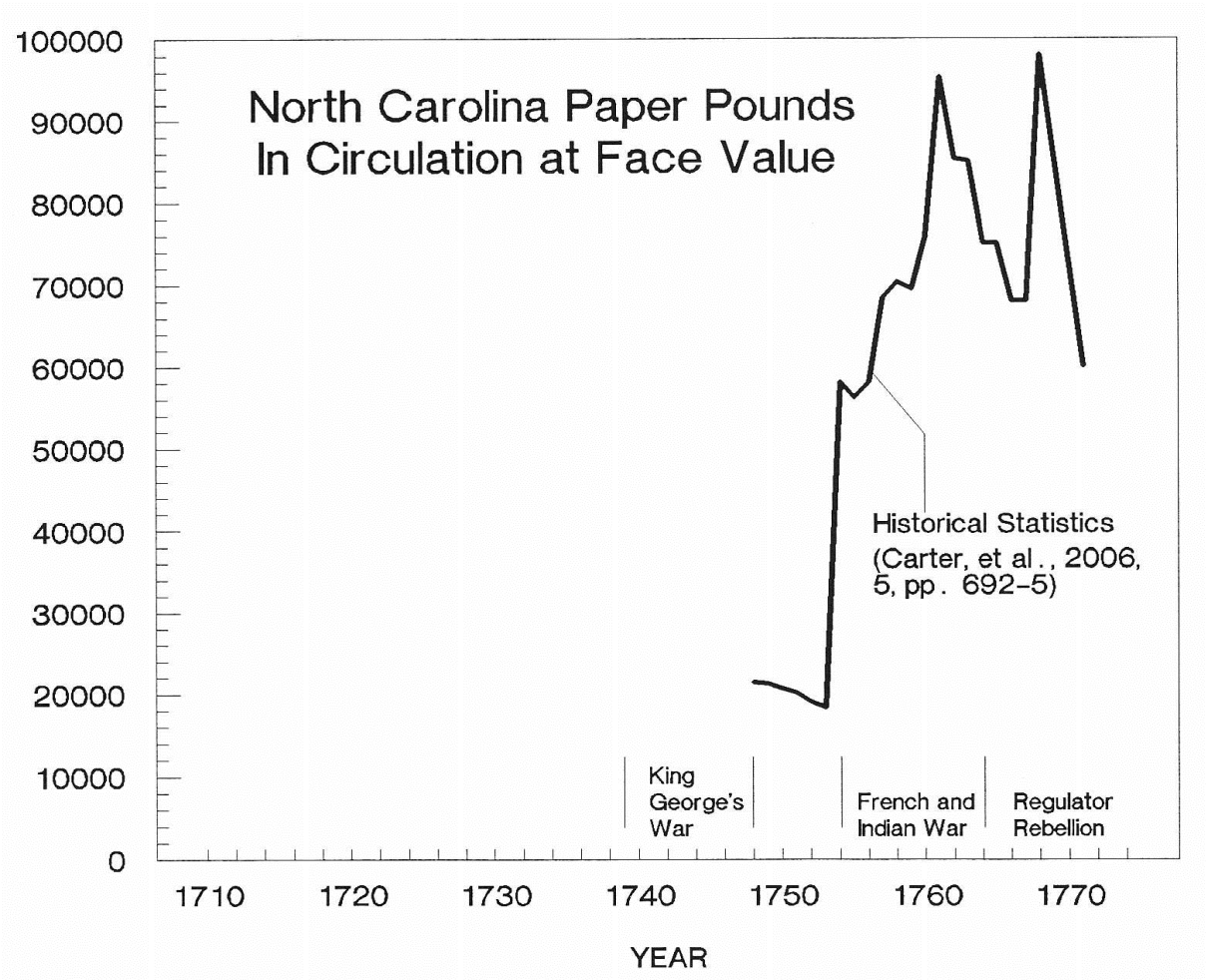
John Harvey } Pub. Treas.

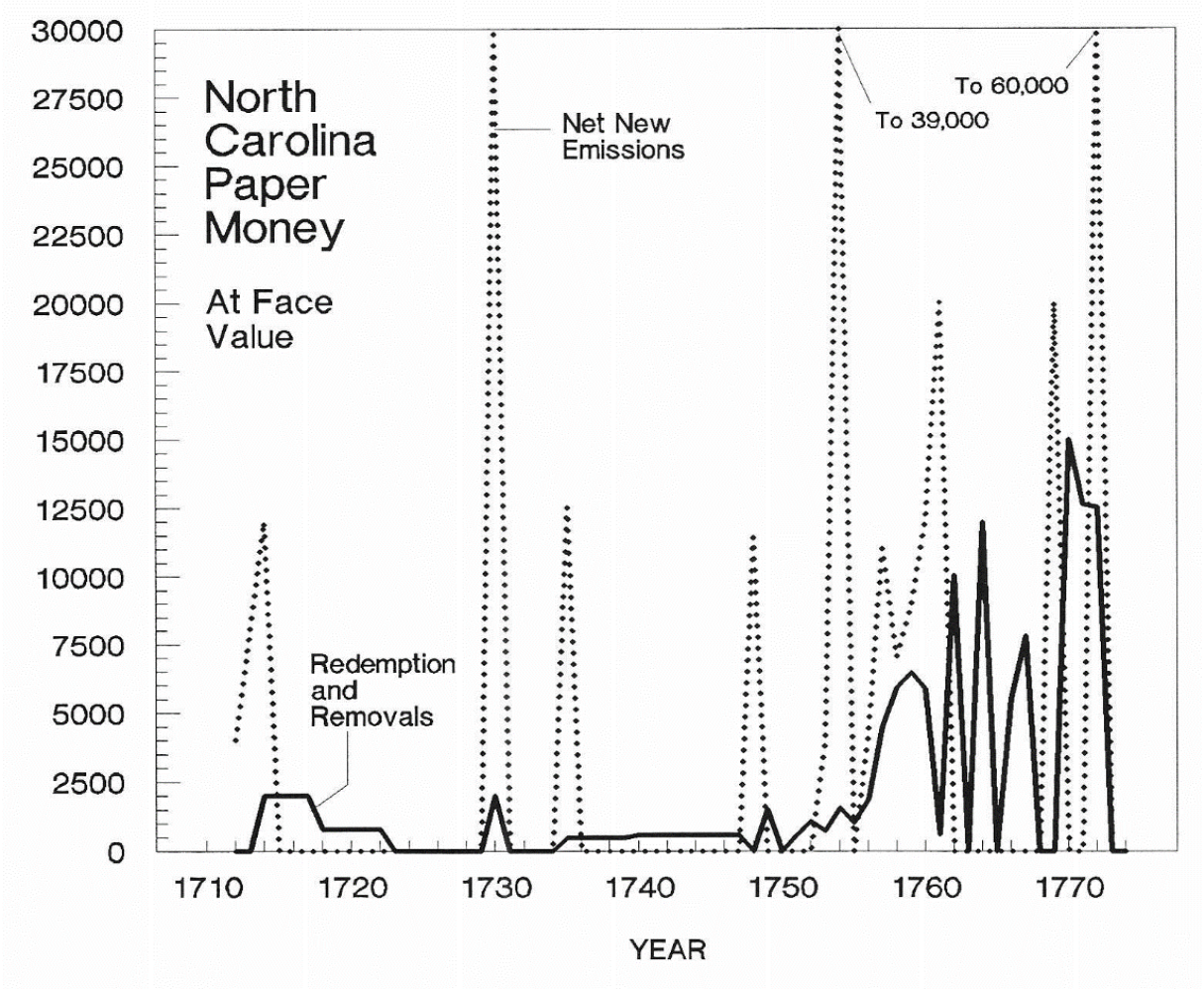
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December 22, 1758 Bill (Emission #13): Last Emission to Pay Interest

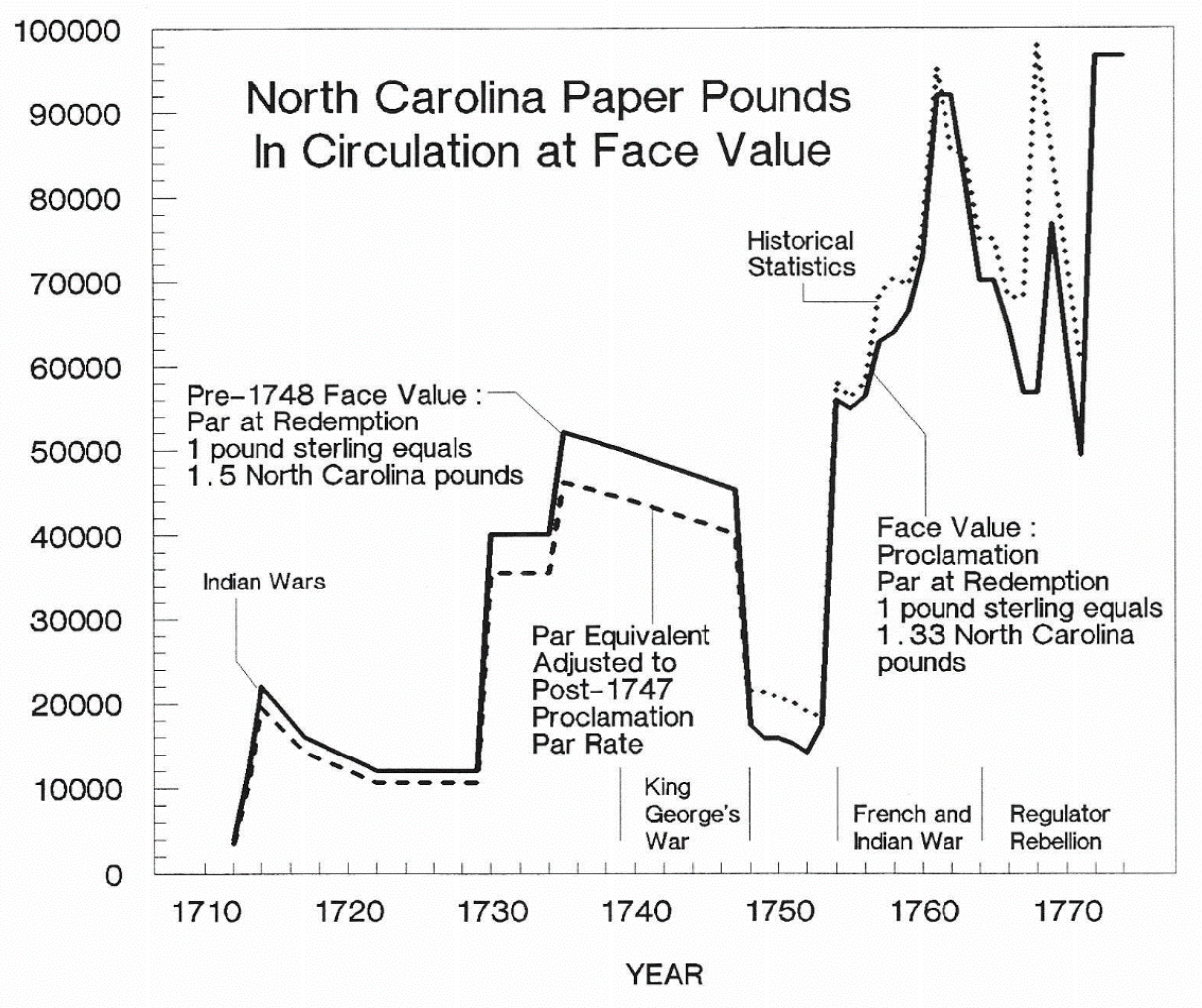


December 1771 Bill (Emission #18): Last Colonial Emission

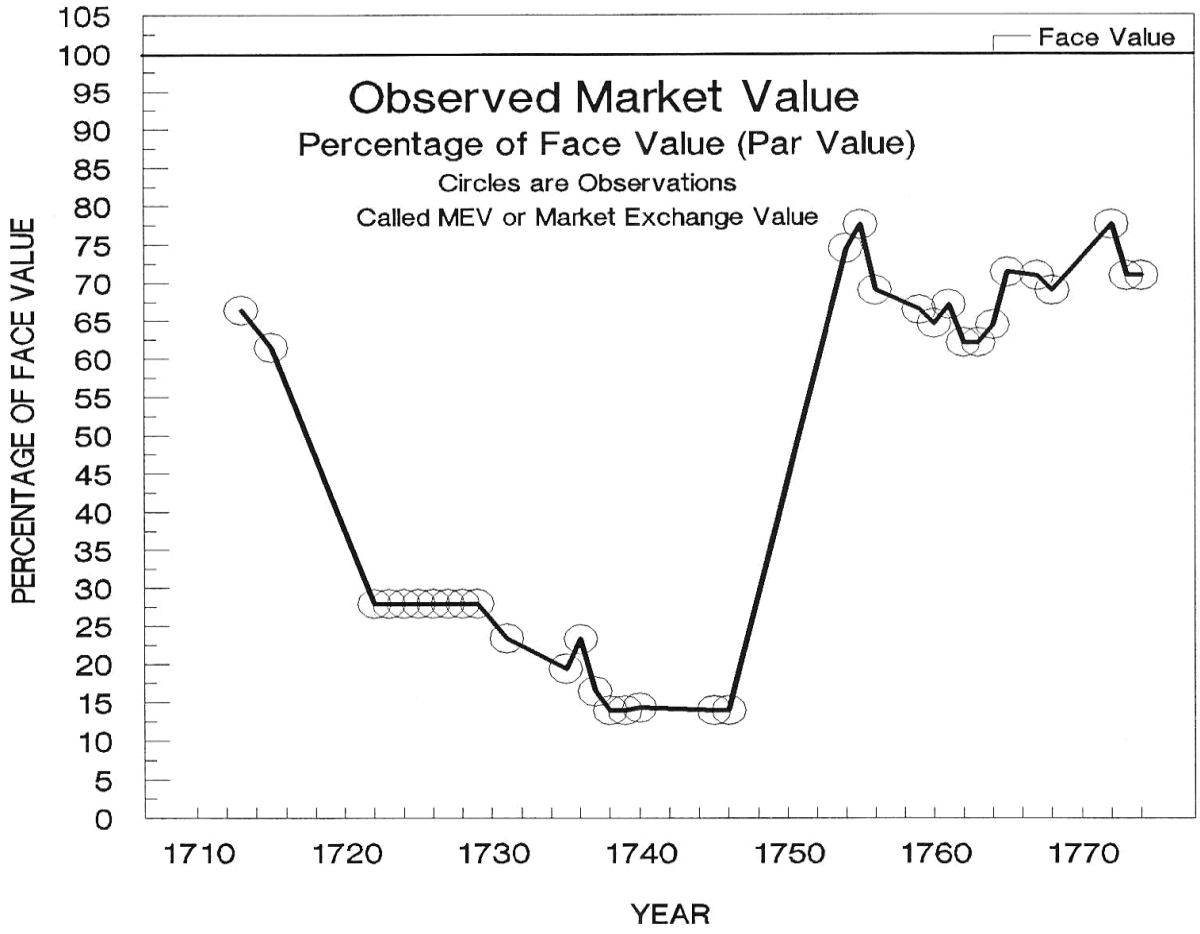

North Carolina Paper Pounds
In Circulation at Face Value
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1710
1720
1730
1740
1750
1760
1770
YEAR
Historical Statistics
(Carter, et al., 2006,
5, pp. 692-5)
King
George's
War
French and
Indian War
Regulator
Rebellion


North Carolina Paper Money
At Face Value
Net New Emissions
To 39,000
To 60,000
Redemption and Removals
30000
27500
25000
22500
20000
17500
15000
12500
10000
7500
5000
2500
0
1710
1720
1730
1740
1750
1760
1770
YEAR

The Facts


North Carolina Paper Pounds
In Circulation at Face Value
Historical
Statistics
Pre–1748 Face Value :
Par at Redemption
1 pound sterling equals
1.5 North Carolina pounds
Face Value :
Proclamation
Par at Redemption
1 pound sterling equals
1.33 North Carolina
pounds
Indian Wars
Par Equivalent
Adjusted to
Post–1747
Proclamation
Par Rate
King
George's
War
French and
Indian War
Regulator
Rebellion
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1710
1720
1730
1740
1750
1760
1770
YEAR

The Facts

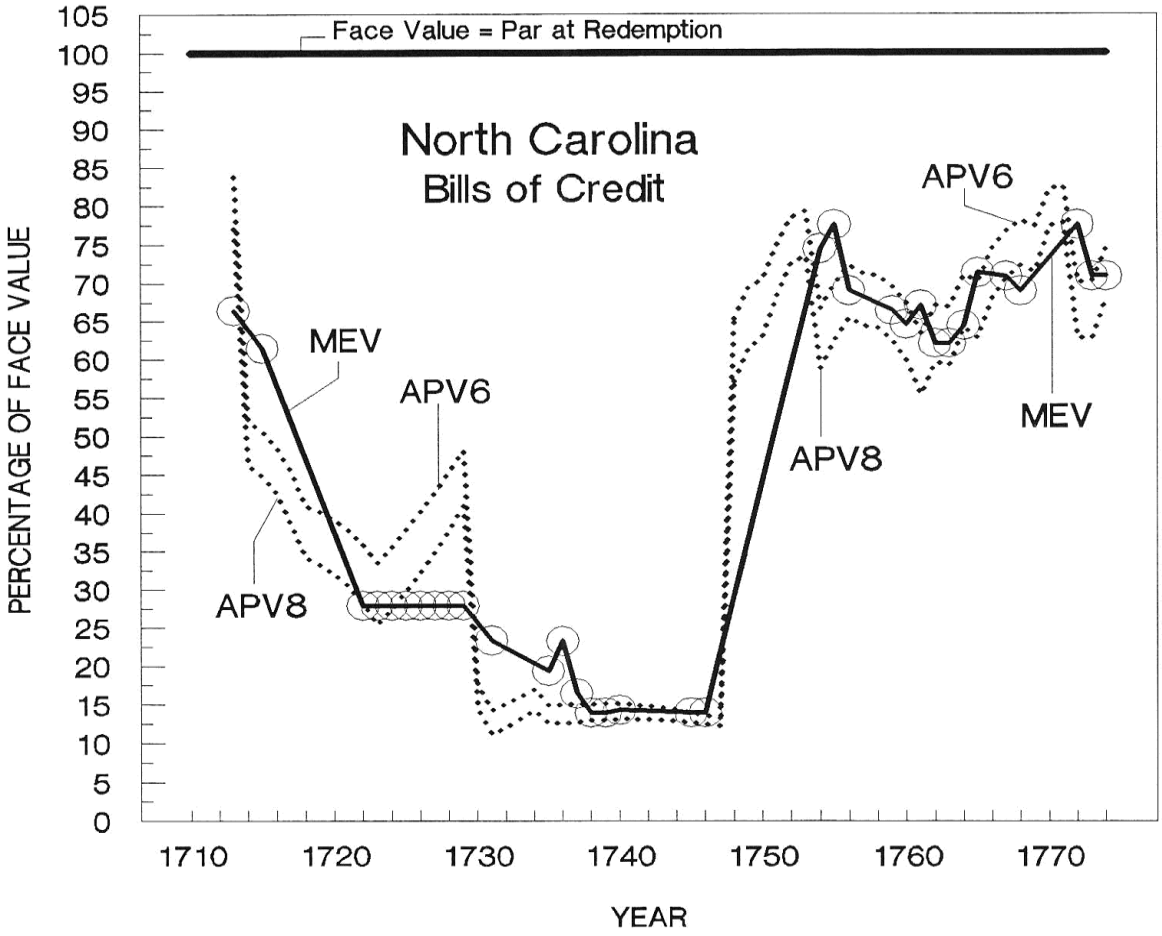


The Facts to be Explained

If North Carolina citizens are assumed to act *as if* their paper money were zero-coupon bonds and interest bearing bonds, and *if* citizen are assumed to act *as if* they correctly forecasted the actual redemption path of these bonds by the government, then the observed market value of their paper money is more accurately predicted and tracked than by any other method or theory.

In other words, the discounted present value of the paper money as zero-coupon and interest bearing bonds tracks the observed market value of the paper money.

The paper money traded below face value due to time-discounting and not depreciation or inflation. Prior scholarship has simply confused depreciation for time-discounting.



APV = expected asset present value of the average bill in circulation discounted at 6 and 8 percent, APV6 and APV8, respectively.

MEV = the observed market value (market exchange value).

Table 1 *MEV's Statistical Relationship to APV, 1713-1774*

				Durbin's *Chi*^{2}	*N*	Adjusted R^2	*F*
MEV_t =	4.5509*	+ 0.8306($APV6_t$)***	+ z_t	44.66***	62	0.83	299.58***
	(2.5901)	(0.0480)					
Co-integration test: $[z_t - z_{t-1}]$ =	0.1740	- 0.3429(z_{t-1})**			61	0.16	12.38***
	(0.9059)	(0.0975)					
MEV_t =	-0.6314	+ 0.2181($APV6_t$)***	+ 0.7810(MEV_{t-1})*** + z_t	2.02	61	0.83	299.58***
	(0.8790)	(0.0320)	(0.0350)				
Co-integration test: $[z_t - z_{t-1}]$ =	-0.0230	- 0.8168(z_{t-1})***			60	0.40	40.18***
	(0.3884)	(0.1289)					
MEV_t =	6.5586***	+ 0.8927($APV8_t$)***	+ z_t	42.28***	62	0.84	311.88***
	(2.4400)	(0.0505)					
Co-integration test: $[z_t - z_{t-1}]$ =	0.1847	- 0.3533(z_{t-1})***			61	0.17	12.95***
	(0.8979)	(0.0982)					
MEV_t =	-0.1029	+ 0.2454($APV8_t$)***	+ 0.7706(MEV_{t-1})*** + z_t	0.64	61	0.98	1764.08***
	(0.8328)	(0.0332)	(0.0338)				
Co-integration test: $[z_t - z_{t-1}]$ =	-0.0257	- 0.8956(z_{t-1})***			60	0.44	47.24***
	(0.3779)	(0.1303)					

Sources: Appendix Table A. See text for variable definitions and construction.
Notes: Data are annual. Interpolated values are used for missing *MEV* data. Standard errors are in parentheses under their respective coefficients. *APV6 =APV* when discounted at 6 percent. *APV8 =APV* when discounted at 8 percent. Dickey-Fuller critical values are used for the (t-1) independent variables, see Enders (1995, p. 419). Durbin's *Chi*^{2} is Durbin's Alternative Tests for autocorrelation testing whether the null hypothesis of no serial correlation can be rejected. OLS provides unbiased and consistently estimated coefficients, but biased-low standard errors when serial correlation is present. Adding lagged values of the dependent variable eliminates serial correlation for better assessment of standard error-statistical significance, but biases the coefficients on the other independent regressors (Achen, 2000; Maddala, 1977, pp. 147, 281-3; Pindyck and Rubinfeld, 1998, pp. 159, 235). Thus, the OLS regressions are used for coefficient accuracy and the regressions corrected for serial correlation are used to assess statistical significance.
*** Statistically significance above the 0.01 level.
** Statistically significance above the 0.05 level.
* Statistically significance above the 0.1 level.

Table 2 *Testing the Quantity Theory of "Paper" Money*

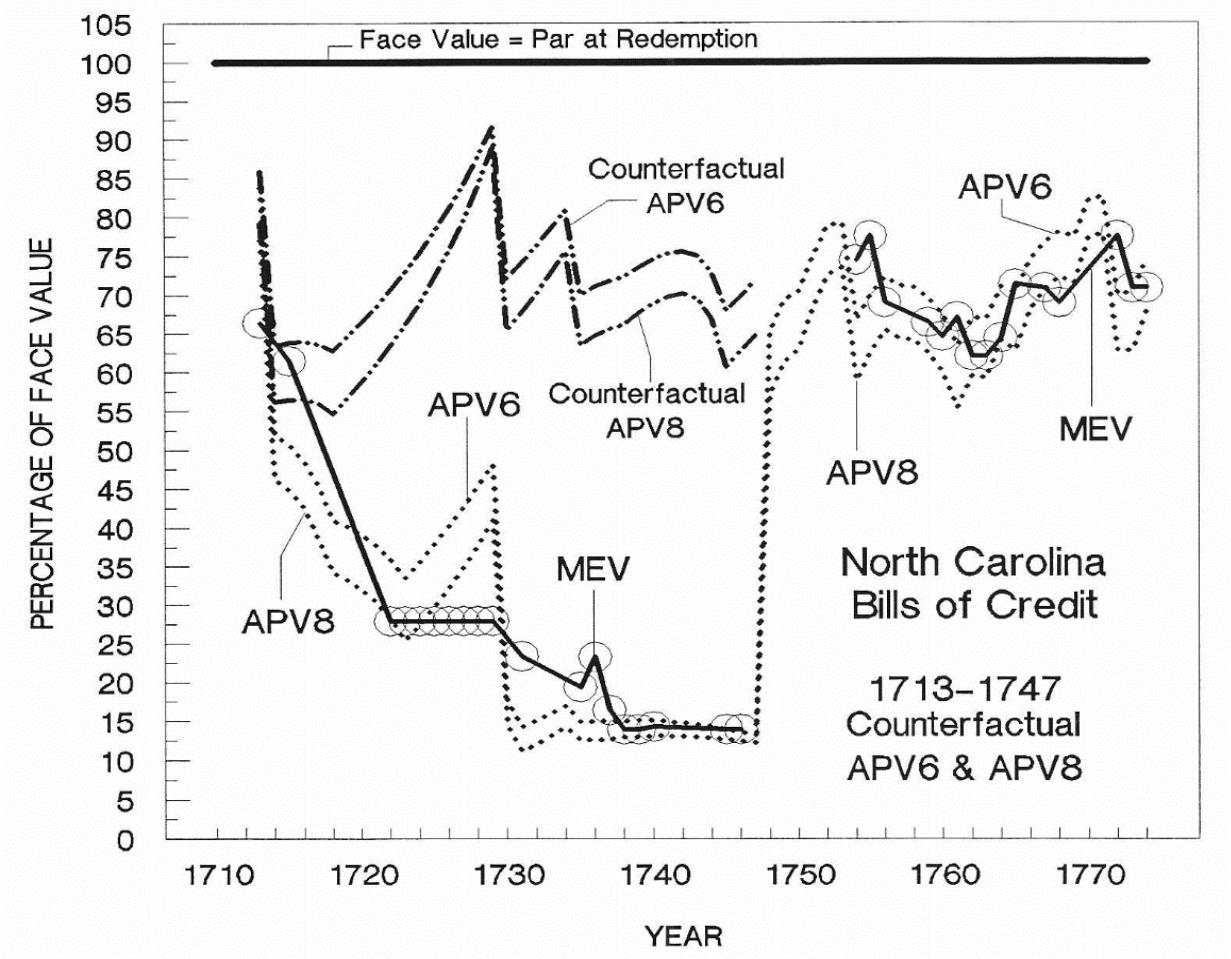
Dependent Variable		Constant	$\ln M_t$	$\ln M_{t-1}$	$\ln M_{t-2}$	$\ln P_{NCt-1}$	MEV_{t-1}	Durbin's χ^2	N	Adjusted R^2	F
$\ln P_{NCt}$	=	8.586***	-0.256**					742.61***	62	0.07	5.83**
		(1.110)	(0.106)								
$\ln P_{NCt}$	=	-0.001	0.009			0.984***		19.70***	61	0.96	662.31***
		(0.357)	(0.025)			(0.029)					
$\ln P_{NCt}$	=	8.651***	-0.558**	0.298				629.12***	61	0.10	4.16**
		(1.143)	(0.268)	(0.268)							
$\ln P_{NCt}$	=	-0.050	-0.099*	0.115**		0.979***		20.10***	61	0.96	465.84***
		(0.349)	(0.059)	(0.058)		(0.028)					
$\ln P_{NCt}$	=	8.555***	-0.494*	-0.015	0.259			884.50***	60	0.09	3.03**
		(1.187)	(0.277)	(0.383)	(0.270)						
$\ln P_{NCt}$	=	-0.112	-0.110*	0.154*	-0.024	0.985***		18.47***	60	0.96	340.12***
		(0.360)	(0.060)	(0.082)	(0.058)	(0.029)					
MEV_t	=	-57.616	9.763**					668.82***	62	0.08	6.20**
		(41.030)	(3.920)								
MEV_t	=	0.745	-0.013				0.988***	26.22***	61	0.97	893.76***
		(8.066)	(0.799)				(0.025)				
MEV_t	=	-65.013	16.626*	-6.226				782.52***	61	0.09	3.98**
		(42.414)	(9.954)	(9.949)							
MEV_t	=	0.991	0.290	-0.326			0.987***	26.27***	61	0.97	585.88***
		(8.259)	(1.943)	(1.903)			(0.025)				
MEV_t	=	-68.500	14.036	0.160	-3.502			1078.50***	60	0.08	2.72**
		(44.176)	(10.313)	(14.250)	(10.052)						
MEV_t	=	-0.044	0.632	-2.992	2.413		0.993***	20.88***	60	0.97	434.08***
		(8.544)	(1.982)	(2.698)	(1.908)		(0.026)				

Sources: Appendix Table A.
Notes: See the notes to Table 1. See text for P_{NC} construction.

Table 3 *A Horse-Race between Real Asset Value and the Quantity of Paper Money, 1713-1774*

					Durbin's *Chi*^{2}	*N*	Adjusted R^2	*F*
MEV_t	$= -66.5201^{***} + 6.8965(\ln M_t)^{***} + 0.8107(APV6_t)^{***} + z_t$				61.14^{***}	62	0.88	215.15^{***}
	(15.0992)	(1.4492)	(0.04135)					
MEV_t	$= -16.0887^{**} + 1.5314(\ln M_t)^{**} + 0.2459(APV6_t)^{***} + 0.7382(MEV_{t-1})^{***} + z_t$				1.24	61	0.98	1190.61^{***}
	(6.1686)	(0.6054)	(0.0326)	(0.0375)				
MEV_t	$= -53.1691^{***} + 5.8193(\ln M_t)^{***} + 0.8680(APV8_t)^{***} + z_t$				63.04^{***}	62	0.87	199.73^{***}
	(15.5934)	(1.5041)	(0.0460)					
MEV_t	$= -11.4000^{*} + 1.1260(\ln M_t)^{*} + 0.2618(APV8_t)^{***} + 0.7440(MEV_{t-1})^{***} + z_t$				0.51	61	0.98	1233.83^{***}
	(5.8614)	(0.5786)	(0.0335)	(0.0357)				

Sources: Appendix Table A. See text for variable definitions and construction.
Notes: See the notes to Table 1, and Appendix Tables A and B.



A counterfactual analysis of the 1715-1747 collapse in market value:

This collapse was due to changes in redemption structures caused 1) by the British in 1730 and 2) by a colonial assembly experiment in 1723 that tried to convert their issue-redemption bond currency into a re-circulating fiat currency.