

Table II

Tobacco Productivity Sensitivity Analysis, 1669-1703 Productivity Sensitivity Analysis,
1669-1703

M O D E L	P A V G	P M I N 4	L A N D	U N I T D	S U M M	P O P P	C H E C K	S H E P G	W A R	Y E A R	R ²	D W
PRC	263 (0.4)	-1831* (3.8)	2.20 (1.1)	118 (0.3)	1070 (1.9)	-41.0 (1.3)	79 (1.0)	-28.0* (3.2)	322* (2.3)	-29.1 (1.5)	.752	1.95
PRC1	-4 (0.0)	-1830* (3.5)	2.00 (1.1)	202 (0.6)	898* (2.3)	-33.0 (1.2)	53 (0.9)	-30.2* (4.1)	343* (2.6)	-28.7 (1.5)	.750	2.00
DL1	182 (0.5)	-1752* (3.4)	2.32 (1.1)	152 (0.5)	1080 (2.1)	-41.6 (1.3)	98 (0.9)	-27.8* (3.3)	318* (2.3)	-29.1 (1.6)	.753	1.88
PA2	-221 (0.3)	-1738* (2.9)	1.98 (1.0)	274 (0.7)	839 (2.0)	-29.6 (1.0)	59 (1.0)	-31.1* (4.0)	352* (2.6)	-28.9 (1.5)	.751	2.00
PA3	-2221 (2.1)	-784 (1.2)	1.92 (1.1)	831 (2.0)	180 (0.4)	3.8 (0.1)	149* (2.3)	-35.8* (5.3)	424* (3.5)	-28.8 (1.7)	.806	2.31
PA4	-3856* (5.5)	-269 (0.7)	2.59* (2.4)	844* (3.9)	-730 (2.0)	49.8* (2.4)	153* (4.4)	-34.3* (8.3)	377* (5.0)	-29.2* (2.7)	.918	2.92
PA6	-3603* (5.5)	-1164* (3.5)	2.92* (1.1)	303 (0.6)	-1082* (2.3)	70.3* (1.2)	-20 (0.9)	-29.0* (3.3)	227* (2.3)	-37.8* (1.6)	.914	2.05

	(5.4)	(3.7)	(2.6)	(1.6)	(2.5)	(2.9)	(0.6)	(7.0)	(2.8)	(3.4)		
PA ∞	-10391*	-591	2.40	897*	-754	107.9	56	-42.9*	449*	-146.3*	.852	1.91
	(3.0)	(1.0)	(1.4)	(2.6)	(0.5)	(2.1)	(1.1)	(6.0)	(4.1)	(3.2)		

Sources and Notes:

For sources, see Table I. These models repeat the regression presented in Table I but substitute for PA5 other proxies of average tobacco prices (PAVG). PRC and PRC-1 employ the price of tobacco prevailing during the current production year and previous year's price respectively. Such assumptions are at the heart of the cobweb model. See Hossein Askari and John Thomas Cummings, Agricultural Supply Response: A Survey of the Econometric Evidence (New York: Praeger, 1976) 25-6. DL1 equals current production year prices extrapolated by the change in price from the previous year (increased with rising prices, decreased with falling prices). See G. S. Maddala, Introduction to Econometrics (New York: Macmillan, 1988) 338-9. These were also tested with various weights but the models were all inferior to PRC. See Askari and Cummings 26. PA2, PA3, PA4, and PA6 represent the average of prices for the current production year and respectively the previous year, previous two years, previous three years, previous four years, and previous six years. PA ∞ represents the "standard" distributed lag employed by economists for time-series analysis, but, to avoid the problem of autocorrelation, the analysis employs the techniques described by G. S. Maddala which involves empirically determining the proper weight attached to previous prices (with $\delta=0.89$ providing the best fit). See Maddala 342-4. Cf. the standard approach of Marc Nerlove, The Dynamics of Supply: Estimation of Farmers' Response to Price (Baltimore: Johns Hopkins Press, 1958). These models of average prices are not significantly improved by weighting previous prices which suggests previous prices bear equal weight with current prices in planter decisions although the impact of previous prices peaks at five years back.