

The Liquidity Effect

Theoretical Literature:

- Kydland and Prescott (1982), *Econometrica*
- Long and Plosser (1982), *JPE*
- Cooley and Hansen (1989), *AER*
- Fuerst (1992), *JME*
- Christiano and Eichenbaum (1992), *AER*
- Cook (1999), *JME*
- Edge (2000), *BOG Federal Reserve*

Real
Economy

Monetary Economy-
No Liquidity Effect

Monetary Models
that Generate
Liquidity Effects

Empirical Literature:

- Cagan and Gandolfi (1969), *AER*
 - Melvin (1983), *Economic Inquiry*
 - Reichenstein (1987), *Economic Inquiry*
 - Leeper and Gordon (1992), *JME*
 - Gali (1992), *QJE*
 - Lastrapes and Selgin (1995), *JMacro*
 - Strongin (1995), *JME*
 - Christiano and Eichenbaum (1997), *REStat*
 - Pagan and Robertson (1998), *REStat*
- } Finds Liquidity Effects
- } Liquidity Effects Vanish in Late 1970s
- } Find Liquidity Effects in a Structural VAR
- } Find Liquidity Effect using Non-Borrowed Reserves as Policy Instrument
- } Finds that Structural VAR Evidence is Weak

Long-Run Neutrality and Superneutrality:

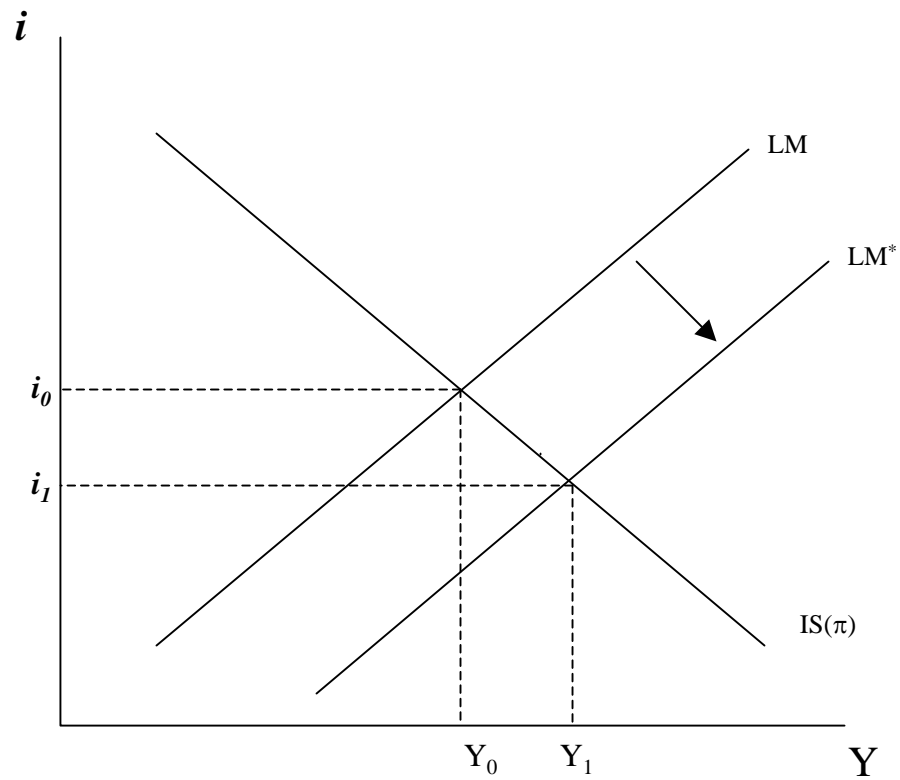
- Lucas (1980), *AER*
- Geweke (1986), *Econometrica*
- Mishkin (1992), *JME*
- Crowder and Hoffman (1996), *JMCB*
- Crowder (1998), *Economic Inquiry*
- King and Watson (1997), *FRB Richmond Econ Quarterly*
- Koustas and Serletis (1999), *JME*
- Fisher and Seater (1993), *AER*

Find Evidence in Favor of the LRN and/or LRSN Hypothesis

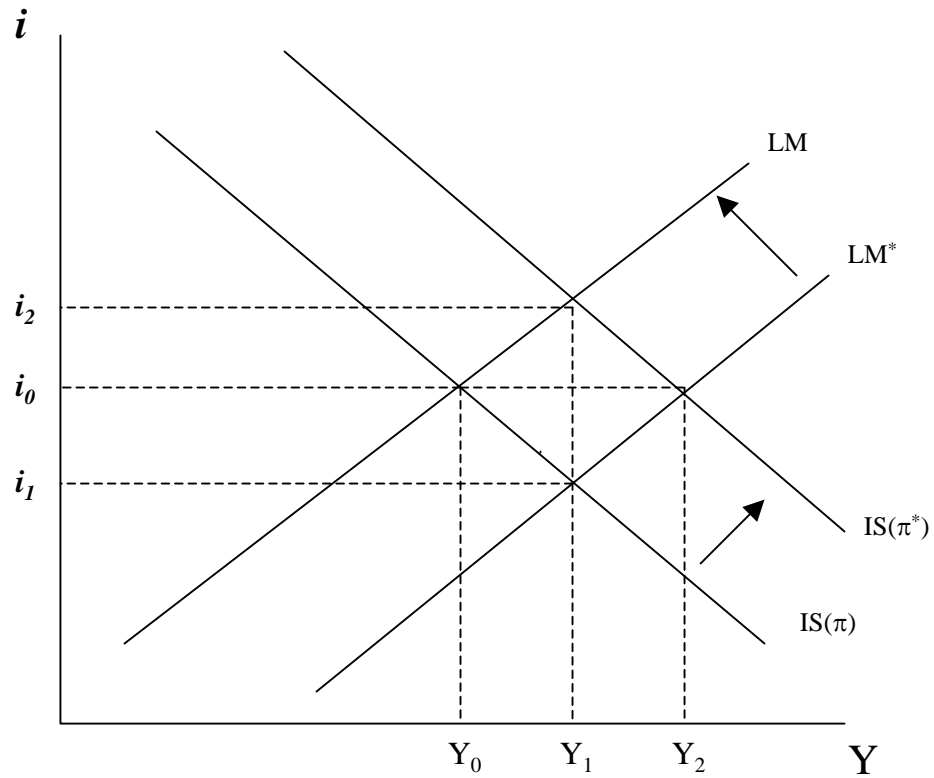
Find Evidence Against LRN and/or LRSN

Derive Necessary and Sufficient Conditions for LRN and LRSN

Liquidity Effect in IS-LM Model



Fisher Effect in IS-LM Model



Importance of the Orders of Integration of German Variables:

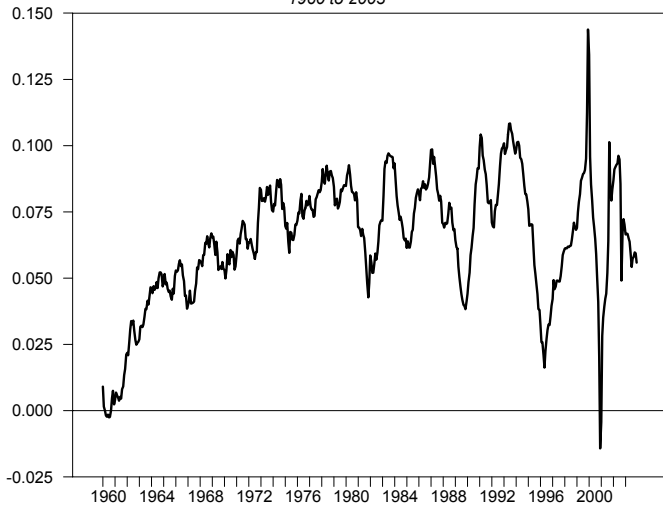
- Fisher and Seater (1993) show that LRN and LRSN can only be tested when variables are integrated.
- Crowder (1998) finds evidence that monetary base growth and inflation are $I(1)$ and $CI(1,1)$ consistent with LRN.
- Crowder and Hoffman (1996) find evidence that inflation and nominal interest rates are $I(1)$ and $CI(1,1)$ consistent with LRSN.
- Granger and Newbold (1977) and Phillips (1986) discuss spurious regression.
- Phillips (1987) shows that inference in non-standard regressions with integrated variables.

Overview of my Results:

- Base growth, inflation and nominal interest rates $I(1)$
- Base growth, inflation and nominal interest rates $CI(1,1)$
- Two long-run equilibria \Rightarrow one common $I(1)$ component
- Two innovations have temporary effects, One innovation has permanent effect
- Cointegration \Rightarrow restrictions on the reduced form VAR
- Using one extra ID restriction (money growth responds with a one-period lag to inflation innovation) generates IRFs consistent with Liquidity Effect
- My empirical model can explain the results using NBR

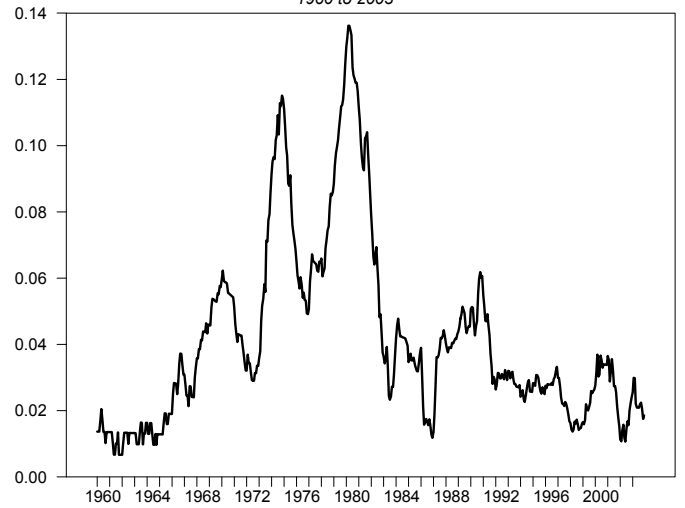
Monetary Base Growth Rate

1960 to 2003



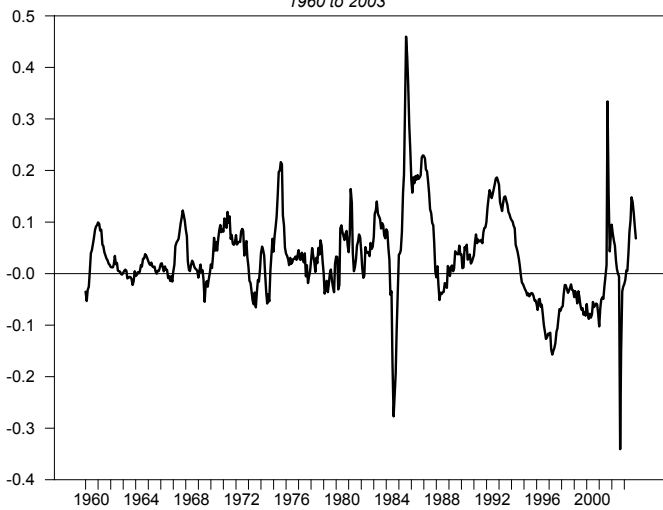
CPI Inflation Rate

1960 to 2003



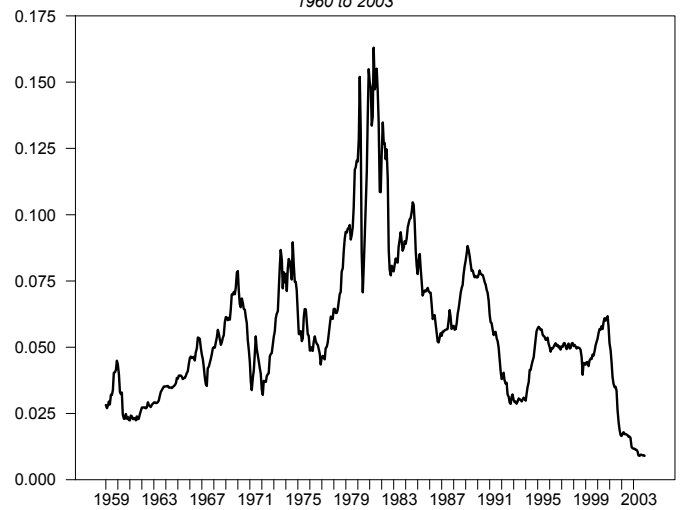
Non-Borrowed Reserves Growth Rate

1960 to 2003



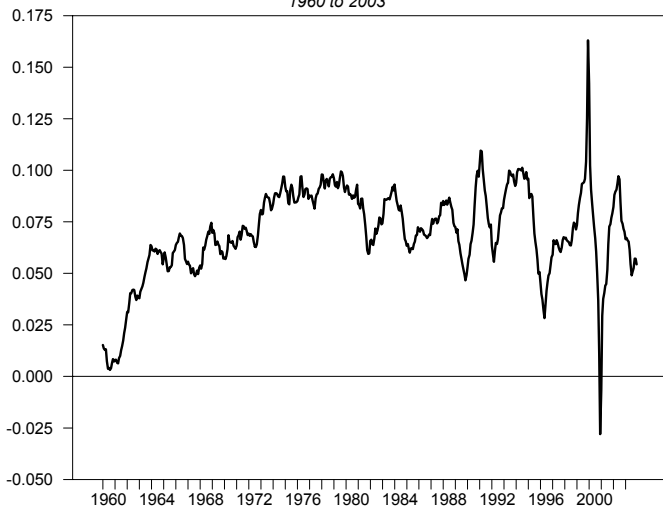
3-Month Treasury Bill Rate

1960 to 2003



Currency Growth Rate

1960 to 2003



5-year Treasury Note Rate

1960 to 2003



Variable	ADF	DF_{GLS}	DF_{GLSu}	MZ_{α}	MZ_{τ}	CADF	Perron	AR(1)	MA(1)	ARCH(1)	GARCH(1)
Base Growth	-3.61*	-0.79	-3.25*	-1.64	-0.84		-4.07	0.96 (0.07)	0.54 (0.16)	0.28 (0.29)	0.88 (0.14)
NBR Growth	-3.24*	-2.36*	-3.19*	-9.77*	-2.16*		-4.83	0.71 (0.04)	0.16 (0.09)	0.02 (0.01)	0.99 (0.01)
Inflation	-2.36	-1.64	-2.29	-5.89	-1.72		-5.39	0.99 (0.01)	NA	0.12 (0.04)	0.83 (0.05)
T-bill Rate	-2.65	-2.31*	-2.55	-15.64*	-2.74*		-5.79*	1.00 (0.01)	0.40 (0.05)	0.25 (0.05)	0.76 (0.04)
5% CV	-2.86	-1.98	-2.73	-8.10	-1.98		-5.55				