

# VAR tables for historical data: Short-term interest rates

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	4.7 (1.089)	0.48 (0.253)	4.7 (1.119)	0.48 (0.26)	4.79 (1.106)	0.51 (0.255)	4.52 (1.266)	0.61 (0.26)	4.52 (1.249)	0.61 (0.254)
LR Mean	6.04 (0.887)	3.9 (0.767)	6.04 (0.912)	3.9 (0.788)	6.11 (0.901)	3.95 (0.737)	4.88 (1.034)	4.93 (1.168)	4.88 (1.021)	4.93 (1.057)
Growth (-1)	0.44 (0.079)	0.04 (0.018)	0.44 (0.081)	0.04 (0.019)	0.43 (0.081)	0.03 (0.019)	0.44 (0.111)	0.03 (0.014)	0.44 (0.11)	0.03 (0.014)
Int. rate (-1)	-0.33 (0.209)	0.82 (0.049)	-0.33 (0.215)	0.82 (0.05)	-0.34 (0.214)	0.82 (0.049)	-0.36 (0.214)	0.85 (0.072)	-0.36 (0.211)	0.85 (0.068)
<i>Innov. covar.</i>										
Growth	45.29		44.95 (5.686)		44.71 (5.618)		45.03 (8.257)		45.03 (8.293)	
Int. rate	3.35	2.45	3.33 (0.981)	2.43 (0.307)	3.29 (0.968)	2.41 (0.304)	3.26 (1.07)	2.47 (0.362)	3.26 (1.076)	2.47 (0.363)
Log likelihood	682.4		682.4		687.5		684.2		689.5	

Table 1: 1-lag test VAR for USA. In restricted MLEs, mean difference is 0.05

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	4.6	0.2	4.6	0.2	4.7	0.24	4.62	0.24	4.62	0.24
	(1.239)	(0.276)	(1.306)	(0.291)	(1.276)	(0.282)	(1.278)	(0.273)	(1.246)	(0.253)
LR Mean	6.02	3.78	6.02	3.78	6.04	3.89	5.68	5.62	5.68	5.62
	(0.764)	(0.962)	(0.805)	(1.014)	(0.787)	(0.913)	(0.821)	(2.312)	(0.823)	(1.776)
Growth (-1)	0.49	0.02	0.49	0.02	0.48	0.02	0.49	0.02	0.49	0.02
	(0.092)	(0.02)	(0.097)	(0.022)	(0.096)	(0.021)	(0.121)	(0.018)	(0.12)	(0.018)
Int. rate (-1)	-0.81	0.94	-0.81	0.94	-0.81	0.93	-0.79	0.97	-0.79	0.97
	(0.394)	(0.088)	(0.415)	(0.093)	(0.412)	(0.092)	(0.396)	(0.117)	(0.389)	(0.112)
Growth (-2)	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01
	(0.1)	(0.022)	(0.105)	(0.023)	(0.105)	(0.023)	(0.16)	(0.02)	(0.16)	(0.02)
Int. rate (-2)	0.78	-0.4	0.78	-0.4	0.77	-0.4	0.78	-0.4	0.78	-0.4
	(0.546)	(0.122)	(0.576)	(0.128)	(0.572)	(0.128)	(0.613)	(0.13)	(0.61)	(0.13)
Growth (-3)	-0.12	0.02	-0.12	0.02	-0.12	0.02	-0.13	0.02	-0.13	0.02
	(0.087)	(0.019)	(0.091)	(0.02)	(0.091)	(0.02)	(0.131)	(0.018)	(0.13)	(0.017)
Int. rate (-3)	-0.19	0.32	-0.19	0.32	-0.2	0.32	-0.18	0.34	-0.18	0.34
	(0.398)	(0.089)	(0.42)	(0.094)	(0.416)	(0.093)	(0.452)	(0.108)	(0.451)	(0.108)
<i>Innov. covar.</i>										
Growth	44.31		43.97		43.56		44		44	
			(5.749)		(5.714)		(7.828)		(7.926)	
Int. rate	3.75	2.2	3.73	2.18	3.67	2.17	3.77	2.24	3.77	2.24
			(0.969)	(0.285)	(0.956)	(0.282)	(1.043)	(0.34)	(1.049)	(0.337)
Log likelihood	660.4		660.4		665.4		662.3		667.4	

Table 2: 3-lag test VAR for USA. In restricted MLEs, mean difference is -0.065 Using AIC optimal lag length 3

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	4.36	0.28	4.36	0.28	4.4	0.31	4.37	0.32	4.37	0.32
	(1.319)	(0.294)	(1.41)	(0.315)	(1.388)	(0.304)	(1.407)	(0.291)	(1.394)	(0.271)
LR Mean	6.01	3.84	6.01	3.84	5.96	3.84	5.66	5.6	5.66	5.6
	(0.814)	(0.978)	(0.869)	(1.045)	(0.853)	(0.942)	(0.878)	(2.371)	(0.88)	(1.806)
Growth (-1)	0.49	0.01	0.49	0.01	0.49	0.01	0.49	0.01	0.49	0.01
	(0.095)	(0.021)	(0.101)	(0.023)	(0.1)	(0.022)	(0.134)	(0.019)	(0.134)	(0.019)
Int. rate (-1)	-0.9	0.96	-0.9	0.96	-0.91	0.96	-0.89	0.99	-0.89	0.99
	(0.425)	(0.095)	(0.454)	(0.101)	(0.452)	(0.101)	(0.446)	(0.131)	(0.441)	(0.127)
Growth (-2)	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02
	(0.102)	(0.023)	(0.109)	(0.024)	(0.108)	(0.024)	(0.165)	(0.019)	(0.164)	(0.019)
Int. rate (-2)	0.91	-0.43	0.91	-0.43	0.91	-0.43	0.91	-0.43	0.91	-0.43
	(0.585)	(0.131)	(0.625)	(0.139)	(0.622)	(0.139)	(0.686)	(0.126)	(0.684)	(0.126)
Growth (-3)	-0.08	0.02	-0.08	0.02	-0.08	0.02	-0.08	0.02	-0.08	0.02
	(0.1)	(0.022)	(0.107)	(0.024)	(0.106)	(0.024)	(0.142)	(0.019)	(0.142)	(0.019)
Int. rate (-3)	-0.52	0.38	-0.52	0.38	-0.53	0.37	-0.52	0.39	-0.52	0.39
	(0.584)	(0.13)	(0.624)	(0.139)	(0.622)	(0.139)	(0.658)	(0.124)	(0.657)	(0.124)
Growth (-4)	-0.04	-0.01	-0.04	-0.01	-0.04	-0.01	-0.05	-0.02	-0.05	-0.02
	(0.088)	(0.02)	(0.095)	(0.021)	(0.094)	(0.021)	(0.11)	(0.016)	(0.11)	(0.016)
Int. rate (-4)	0.35	-0.05	0.35	-0.05	0.35	-0.05	0.35	-0.04	0.35	-0.04
	(0.423)	(0.094)	(0.452)	(0.101)	(0.449)	(0.1)	(0.367)	(0.115)	(0.368)	(0.115)
<i>Innov. covar.</i>										
Growth	44.17		43.83		43.56		43.83		43.83	
			(5.831)		(5.788)		(7.868)		(7.945)	
Int. rate	3.77	2.2	3.74	2.18	3.69	2.17	3.75	2.24	3.75	2.24
			(0.985)	(0.29)	(0.972)	(0.287)	(1.062)	(0.347)	(1.065)	(0.346)
Log likelihood	655.1		655.1		660.3		656.8		662.2	

Table 3: 4-lag test VAR for USA. In restricted MLEs, mean difference is -0.065

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.33 (0.978)	0.3 (0.213)	1.33 (1.01)	0.3 (0.22)	1.47 (0.98)	0.29 (0.204)	-0.28 (0.872)	0.16 (0.204)	-0.28 (0.795)	0.16 (0.144)
LR Mean	5.81 (1.924)	4.25 (1.53)	5.81 (1.988)	4.25 (1.581)	5.7 (1.76)	3.97 (1.365)	1.92 (3.172)	2.37 (1.89)	1.92 (2.344)	2.37 (1.244)
Growth (-1)	0.52 (0.086)	0.02 (0.019)	0.52 (0.088)	0.02 (0.019)	0.52 (0.088)	0.02 (0.019)	0.55 (0.173)	0.02 (0.021)	0.55 (0.17)	0.02 (0.021)
Int. rate (-1)	0.35 (0.198)	0.9 (0.043)	0.35 (0.205)	0.9 (0.044)	0.32 (0.202)	0.9 (0.042)	0.48 (0.207)	0.91 (0.062)	0.48 (0.216)	0.91 (0.052)
<i>Innov. covar.</i>										
Growth	34.26		33.96 (4.709)		33.87 (4.678)		34.92 (9.278)		34.92 (9.284)	
Int. rate	2.2	1.62	2.18 (0.755)	1.6 (0.223)	2.15 (0.749)	1.6 (0.22)	2.27 (0.898)	1.61 (0.358)	2.27 (0.904)	1.61 (0.36)
Log likelihood	536.6		536.6		542.1		538.2		544.1	

Table 4: 1-lag test VAR for FRA. In restricted MLEs, mean difference is 0.45

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.4 (1.025)	0.2 (0.213)	1.4 (1.092)	0.2 (0.227)	1.45 (1.043)	0.23 (0.21)	-0.08 (1.015)	0.12 (0.175)	-0.08 (0.803)	0.12 (0.11)
LR Mean	5.87 (2.181)	4.16 (1.744)	5.87 (2.324)	4.16 (1.858)	5.75 (1.997)	4.05 (1.503)	1.69 (5.179)	1.95 (3.075)	1.69 (3.132)	1.95 (1.578)
Growth (-1)	0.43 (0.1)	0 (0.021)	0.43 (0.107)	0 (0.022)	0.42 (0.105)	0 (0.022)	0.45 (0.21)	0.01 (0.022)	0.45 (0.205)	0.01 (0.022)
Int. rate (-1)	0.45 (0.459)	1.07 (0.096)	0.45 (0.489)	1.07 (0.102)	0.44 (0.485)	1.06 (0.101)	0.49 (0.501)	1.07 (0.182)	0.49 (0.503)	1.07 (0.179)
Growth (-2)	0.16 (0.107)	0.02 (0.022)	0.16 (0.114)	0.02 (0.024)	0.16 (0.113)	0.02 (0.024)	0.17 (0.138)	0.02 (0.013)	0.17 (0.137)	0.02 (0.013)
Int. rate (-2)	-0.17 (0.647)	-0.45 (0.135)	-0.17 (0.689)	-0.45 (0.143)	-0.17 (0.684)	-0.45 (0.143)	-0.18 (0.539)	-0.45 (0.235)	-0.18 (0.54)	-0.45 (0.235)
Growth (-3)	0.04 (0.099)	0.01 (0.021)	0.04 (0.106)	0.01 (0.022)	0.04 (0.105)	0.01 (0.022)	0.05 (0.127)	0.01 (0.015)	0.05 (0.124)	0.01 (0.016)
Int. rate (-3)	-0.09 (0.449)	0.28 (0.094)	-0.09 (0.479)	0.28 (0.1)	-0.09 (0.474)	0.28 (0.099)	0.02 (0.323)	0.29 (0.157)	0.02 (0.315)	0.29 (0.156)
<i>Innov. covar.</i>										
Growth	33.72		33.41 (4.823)		33.05 (4.758)		34.1 (9.36)		34.1 (9.51)	
Int. rate	2.17	1.46	2.15 (0.743)	1.45 (0.209)	2.11 (0.731)	1.44 (0.206)	2.19 (0.827)	1.45 (0.298)	2.19 (0.826)	1.45 (0.3)
Log likelihood	520		520		524.9		521.1		526.3	

Table 5: 3-lag test VAR for FRA. In restricted MLEs, mean difference is 0.26Using AIC opimal lag length 3

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.59 (1.031)	0.23 (0.219)	1.59 (1.117)	0.23 (0.237)	1.46 (1.097)	0.24 (0.217)	0.17 (1.161)	-0.06 (0.216)	0.17 (11.488)	-0.06 (1.119)
LR Mean	6.12 (1.97)	4.3 (1.69)	6.12 (2.134)	4.3 (1.831)	5.67 (1.943)	4.02 (1.542)	-4.29 (53.788)	-4.03 (44.511)	-4.29 (43.88)	-4.03 (4.384)
Growth (-1)	0.43 (0.099)	0 (0.021)	0.43 (0.107)	0 (0.023)	0.43 (0.107)	0 (0.023)	0.44 (0.202)	0.01 (0.021)	0.44 (0.32)	0.01 (0.124)
Int. rate (-1)	0.51 (0.475)	1.09 (0.101)	0.51 (0.515)	1.09 (0.109)	0.51 (0.515)	1.08 (0.108)	0.57 (0.553)	1.1 (0.175)	0.57 (1.784)	1.1 (0.369)
Growth (-2)	0.18 (0.107)	0.02 (0.023)	0.18 (0.116)	0.02 (0.025)	0.18 (0.116)	0.02 (0.024)	0.18 (0.136)	0.02 (0.014)	0.18 (0.161)	0.02 (0.06)
Int. rate (-2)	-0.18 (0.671)	-0.47 (0.142)	-0.18 (0.727)	-0.47 (0.154)	-0.18 (0.728)	-0.47 (0.154)	-0.15 (0.56)	-0.46 (0.227)	-0.15 (0.538)	-0.46 (0.243)
Growth (-3)	0.12 (0.107)	0.02 (0.023)	0.12 (0.115)	0.02 (0.024)	0.12 (0.115)	0.02 (0.024)	0.12 (0.123)	0.02 (0.016)	0.12 (0.192)	0.02 (0.072)
Int. rate (-3)	-0.07 (0.67)	0.32 (0.142)	-0.07 (0.726)	0.32 (0.154)	-0.07 (0.726)	0.32 (0.153)	-0.06 (0.471)	0.32 (0.18)	-0.06 (0.737)	0.32 (0.266)
Growth (-4)	-0.17 (0.098)	-0.01 (0.021)	-0.17 (0.106)	-0.01 (0.022)	-0.17 (0.106)	-0.01 (0.022)	-0.18 (0.135)	-0.02 (0.015)	-0.18 (0.374)	-0.02 (0.109)
Int. rate (-4)	0.01 (0.463)	-0.03 (0.098)	0.01 (0.501)	-0.03 (0.106)	0.01 (0.502)	-0.03 (0.106)	0.14 (0.364)	-0.01 (0.109)	0.14 (1.044)	-0.01 (0.197)
<i>Innov. covar.</i>										
Growth	32.52		32.22 (4.751)		32.22 (4.769)		32.82 (8.697)		32.82 (15.554)	
Int. rate	2.06	1.46	2.04 (0.743)	1.45 (0.214)	2.04 (0.739)	1.44 (0.211)	2.17 (0.81)	1.47 (0.316)	2.17 (1.242)	1.47 (0.37)
Log likelihood	513.7		513.7		519.2		515.2		521.7	

Table 6: 4-lag test VAR for FRA. In restricted MLEs, mean difference is 0.26

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.64 (0.694)	0.16 (0.181)	1.64 (0.713)	0.16 (0.186)	1.67 (0.689)	0.16 (0.178)	1.43 (0.593)	0.27 (0.165)	1.43 (0.565)	0.27 (0.157)
LR Mean	5.74 (1.414)	4.2 (1.337)	5.74 (1.453)	4.2 (1.374)	5.6 (1.341)	3.97 (1.23)	5.02 (1.607)	5.18 (1.826)	5.02 (1.448)	5.18 (1.523)
Growth (-1)	0.66 (0.071)	0.06 (0.018)	0.66 (0.073)	0.06 (0.019)	0.65 (0.071)	0.06 (0.019)	0.67 (0.068)	0.05 (0.02)	0.67 (0.068)	0.05 (0.02)
Int. rate (-1)	0.07 (0.136)	0.88 (0.035)	0.07 (0.139)	0.88 (0.036)	0.07 (0.136)	0.88 (0.035)	0.04 (0.123)	0.9 (0.045)	0.04 (0.118)	0.9 (0.041)
<i>Innov. covar.</i>										
Growth	22.12		21.96 (2.777)		21.77 (2.74)		22.05 (7.899)		22.05 (7.979)	
Int. rate	1.49	1.5	1.48 (0.529)	1.49 (0.189)	1.45 (0.523)	1.49 (0.187)	1.43 (0.577)	1.52 (0.277)	1.43 (0.581)	1.52 (0.278)
Log likelihood	604.9		604.9		610		606.6		611.9	

Table 7: 1-lag test VAR for GBR. In restricted MLEs, mean difference is 0.16

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.51 (0.738)	-0.04 (0.188)	1.51 (0.8)	-0.04 (0.204)	1.43 (0.759)	-0.02 (0.189)	1.35 (0.719)	-0.11 (0.183)	1.35 (0.614)	-0.11 (0.166)
LR Mean	5.98 (1.726)	4.21 (2.039)	5.98 (1.871)	4.21 (2.21)	5.52 (1.64)	3.8 (1.787)	8.8 (9.179)	8.77 (15.15)	8.8 (1.97)	8.77 (3.574)
Growth (-1)	0.66 (0.09)	0.06 (0.023)	0.66 (0.098)	0.06 (0.025)	0.66 (0.097)	0.06 (0.025)	0.66 (0.071)	0.06 (0.023)	0.66 (0.083)	0.06 (0.024)
Int. rate (-1)	-0.46 (0.354)	0.95 (0.09)	-0.46 (0.384)	0.95 (0.098)	-0.47 (0.385)	0.94 (0.097)	-0.43 (0.435)	0.96 (0.109)	-0.43 (0.433)	0.96 (0.104)
Growth (-2)	0.2 (0.106)	-0.01 (0.027)	0.2 (0.115)	-0.01 (0.029)	0.2 (0.115)	-0.01 (0.029)	0.2 (0.16)	-0.01 (0.032)	0.2 (0.159)	-0.01 (0.032)
Int. rate (-2)	0.37 (0.498)	-0.37 (0.127)	0.37 (0.54)	-0.37 (0.138)	0.38 (0.541)	-0.37 (0.137)	0.38 (0.55)	-0.37 (0.173)	0.38 (0.543)	-0.37 (0.172)
Growth (-3)	-0.19 (0.106)	-0.01 (0.027)	-0.19 (0.115)	-0.01 (0.029)	-0.19 (0.115)	-0.01 (0.029)	-0.19 (0.125)	-0.01 (0.03)	-0.19 (0.125)	-0.01 (0.03)
Int. rate (-3)	0.4 (0.51)	0.24 (0.13)	0.4 (0.553)	0.24 (0.141)	0.4 (0.554)	0.24 (0.141)	0.42 (0.506)	0.25 (0.179)	0.42 (0.505)	0.25 (0.177)
Growth (-4)	-0.18 (0.105)	0.04 (0.027)	-0.18 (0.114)	0.04 (0.029)	-0.18 (0.114)	0.04 (0.029)	-0.18 (0.189)	0.04 (0.035)	-0.18 (0.193)	0.04 (0.035)
Int. rate (-4)	-0.1 (0.497)	-0.13 (0.127)	-0.1 (0.538)	-0.13 (0.137)	-0.1 (0.54)	-0.13 (0.137)	-0.1 (0.336)	-0.13 (0.15)	-0.1 (0.341)	-0.13 (0.148)
Growth (-5)	0.2 (0.091)	-0.01 (0.023)	0.2 (0.098)	-0.01 (0.025)	0.2 (0.099)	-0.01 (0.025)	0.2 (0.11)	-0.01 (0.022)	0.2 (0.115)	-0.01 (0.022)
Int. rate (-5)	-0.14 (0.339)	0.21 (0.086)	-0.14 (0.367)	0.21 (0.094)	-0.14 (0.368)	0.21 (0.093)	-0.11 (0.256)	0.22 (0.12)	-0.11 (0.249)	0.22 (0.121)
<i>Innov. covar.</i>										
Growth	20.33		20.18 (2.733)		20.25 (2.727)		20.27 (6.535)		20.27 (6.414)	
Int. rate	1.64	1.32	1.62 (0.517)	1.31 (0.178)	1.61 (0.516)	1.31 (0.176)	1.66 (0.706)	1.33 (0.229)	1.66 (0.681)	1.33 (0.23)
Log likelihood	570.6		570.6		576.4		571.6		578.4	

Table 8: 5-lag test VAR for GBR. In restricted MLEs, mean difference is -0.03Using AIC opimal lag length 5

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.53 (0.734)	0.03 (0.187)	1.53 (0.785)	0.03 (0.2)	1.53 (0.749)	0.05 (0.185)	1.3 (0.682)	-0.09 (0.194)	1.3 (0.578)	-0.09 (0.188)
LR Mean	5.76 (1.775)	4.09 (1.937)	5.76 (1.896)	4.09 (2.07)	5.49 (1.598)	3.87 (1.654)	10.24 (22.897)	10.21 (31.791)	10.24 (2.538)	10.21 (3.836)
Growth (-1)	0.65 (0.091)	0.06 (0.023)	0.65 (0.098)	0.06 (0.025)	0.64 (0.097)	0.06 (0.025)	0.65 (0.075)	0.06 (0.021)	0.65 (0.084)	0.06 (0.024)
Int. rate (-1)	-0.39 (0.358)	0.97 (0.091)	-0.39 (0.382)	0.97 (0.097)	-0.4 (0.381)	0.96 (0.097)	-0.35 (0.446)	0.98 (0.103)	-0.35 (0.444)	0.98 (0.099)
Growth (-2)	0.17 (0.107)	-0.01 (0.027)	0.17 (0.114)	-0.01 (0.029)	0.17 (0.114)	-0.01 (0.029)	0.17 (0.163)	-0.01 (0.033)	0.17 (0.161)	-0.01 (0.034)
Int. rate (-2)	0.29 (0.504)	-0.33 (0.128)	0.29 (0.539)	-0.33 (0.137)	0.29 (0.537)	-0.33 (0.137)	0.3 (0.529)	-0.32 (0.182)	0.3 (0.521)	-0.32 (0.18)
Growth (-3)	-0.14 (0.106)	-0.01 (0.027)	-0.14 (0.113)	-0.01 (0.029)	-0.14 (0.113)	-0.01 (0.029)	-0.14 (0.127)	-0.01 (0.03)	-0.14 (0.129)	-0.01 (0.03)
Int. rate (-3)	0.36 (0.504)	0.17 (0.128)	0.36 (0.538)	0.17 (0.137)	0.35 (0.537)	0.16 (0.137)	0.37 (0.499)	0.17 (0.204)	0.37 (0.496)	0.17 (0.198)
Growth (-4)	-0.07 (0.091)	0.02 (0.023)	-0.07 (0.098)	0.02 (0.025)	-0.07 (0.097)	0.02 (0.025)	-0.08 (0.145)	0.02 (0.025)	-0.08 (0.163)	0.02 (0.028)
Int. rate (-4)	-0.08 (0.344)	0.09 (0.088)	-0.08 (0.368)	0.09 (0.094)	-0.08 (0.366)	0.09 (0.093)	-0.04 (0.264)	0.11 (0.1)	-0.04 (0.26)	0.11 (0.102)
<i>Innov. covar.</i>										
Growth	21.2		21.04 (2.799)		20.94 (2.774)		21.14 (6.7)		21.14 (6.755)	
Int. rate	1.58	1.37	1.56 (0.525)	1.36 (0.181)	1.55 (0.52)	1.36 (0.18)	1.61 (0.687)	1.39 (0.251)	1.61 (0.681)	1.39 (0.256)
Log likelihood	581.3		581.3		586.5		582.5		588.9	

Table 9: 4-lag test VAR for GBR. In restricted MLEs, mean difference is -0.03



	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	3.7	0.83	3.7	0.83	3.59	0.86	3.01	0.99	3.01	0.99
	(1.108)	(0.292)	(1.141)	(0.301)	(1.148)	(0.295)	(0.965)	(0.276)	(0.956)	(0.267)
LR Mean	6.13	4.11	6.13	4.11	5.88	4.07	3.73	4.38	3.73	4.38
	(1.167)	(0.464)	(1.202)	(0.478)	(1.195)	(0.458)	(1.703)	(0.585)	(1.626)	(0.55)
Growth (-1)	0.64	0.04	0.64	0.04	0.65	0.04	0.68	0.03	0.68	0.03
	(0.07)	(0.018)	(0.072)	(0.019)	(0.071)	(0.019)	(0.128)	(0.026)	(0.125)	(0.026)
Int. rate (-1)	-0.37	0.74	-0.37	0.74	-0.37	0.73	-0.41	0.75	-0.41	0.75
	(0.231)	(0.061)	(0.238)	(0.063)	(0.239)	(0.062)	(0.203)	(0.072)	(0.201)	(0.07)
<i>Innov. covar.</i>										
Growth	27.51		27.28		27.39		27.8		27.8	
			(3.598)		(3.594)		(7.092)		(7.118)	
Int. rate	0.92	1.91	0.91	1.9	0.91	1.88	0.8	1.92	0.8	1.92
			(0.676)	(0.25)	(0.673)	(0.248)	(0.875)	(0.388)	(0.873)	(0.391)
Log likelihood	590.8		590.8		596.1		593		598.1	

Table 10: 1-lag test VAR for DEU. In restricted MLEs, mean difference is 0.65

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	3.7	0.83	3.7	0.83	3.59	0.86	3.01	0.99	3.01	0.99
	(1.108)	(0.292)	(1.141)	(0.301)	(1.148)	(0.295)	(0.965)	(0.276)	(0.956)	(0.267)
LR Mean	6.13	4.11	6.13	4.11	5.88	4.07	3.73	4.38	3.73	4.38
	(1.167)	(0.464)	(1.202)	(0.478)	(1.195)	(0.458)	(1.703)	(0.585)	(1.626)	(0.55)
Growth (-1)	0.64	0.04	0.64	0.04	0.65	0.04	0.68	0.03	0.68	0.03
	(0.07)	(0.018)	(0.072)	(0.019)	(0.071)	(0.019)	(0.128)	(0.026)	(0.125)	(0.026)
Int. rate (-1)	-0.37	0.74	-0.37	0.74	-0.37	0.73	-0.41	0.75	-0.41	0.75
	(0.231)	(0.061)	(0.238)	(0.063)	(0.239)	(0.062)	(0.203)	(0.072)	(0.201)	(0.07)
<i>Innov. covar.</i>										
Growth	27.51		27.28		27.39		27.8		27.8	
			(3.598)		(3.594)		(7.092)		(7.118)	
Int. rate	0.92	1.91	0.91	1.9	0.91	1.88	0.8	1.92	0.8	1.92
			(0.676)	(0.25)	(0.673)	(0.248)	(0.875)	(0.388)	(0.873)	(0.391)
Log likelihood	590.8		590.8		596.1		593		598.1	

Table 11: 1-lag test VAR for DEU. In restricted MLEs, mean difference is 0.65Using AIC opimal lag length 1

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	2.94 (1.349)	0.69 (0.355)	2.94 (1.45)	0.69 (0.381)	2.94 (1.425)	0.71 (0.373)	1.65 (1.342)	0.85 (0.315)	1.65 (1.255)	0.85 (0.301)
LR Mean	6.03 (1.178)	4.07 (0.533)	6.03 (1.267)	4.07 (0.573)	5.96 (1.231)	4.04 (0.543)	3.6 (1.961)	3.97 (0.659)	3.6 (1.827)	3.97 (0.608)
Growth (-1)	0.77 (0.091)	0.06 (0.024)	0.77 (0.098)	0.06 (0.026)	0.76 (0.097)	0.06 (0.026)	0.79 (0.176)	0.06 (0.032)	0.79 (0.174)	0.06 (0.032)
Int. rate (-1)	-0.5 (0.348)	0.79 (0.092)	-0.5 (0.374)	0.79 (0.098)	-0.5 (0.372)	0.79 (0.098)	-0.54 (0.36)	0.8 (0.116)	-0.54 (0.357)	0.8 (0.115)
Growth (-2)	-0.26 (0.113)	-0.05 (0.03)	-0.26 (0.122)	-0.05 (0.032)	-0.26 (0.121)	-0.05 (0.032)	-0.25 (0.173)	-0.05 (0.028)	-0.25 (0.173)	-0.05 (0.028)
Int. rate (-2)	0.35 (0.449)	-0.14 (0.118)	0.35 (0.483)	-0.14 (0.127)	0.35 (0.48)	-0.14 (0.126)	0.38 (0.493)	-0.14 (0.16)	0.38 (0.492)	-0.14 (0.159)
Growth (-3)	0.28 (0.114)	0.02 (0.03)	0.28 (0.123)	0.02 (0.032)	0.28 (0.122)	0.02 (0.032)	0.3 (0.167)	0.01 (0.033)	0.3 (0.166)	0.01 (0.032)
Int. rate (-3)	-0.25 (0.444)	0.11 (0.117)	-0.25 (0.477)	0.11 (0.126)	-0.25 (0.475)	0.11 (0.125)	-0.26 (0.451)	0.11 (0.189)	-0.26 (0.45)	0.11 (0.188)
Growth (-4)	-0.14 (0.092)	0.03 (0.024)	-0.14 (0.099)	0.03 (0.026)	-0.14 (0.098)	0.03 (0.026)	-0.12 (0.098)	0.03 (0.022)	-0.12 (0.097)	0.03 (0.022)
Int. rate (-4)	0.2 (0.348)	-0.01 (0.091)	0.2 (0.374)	-0.01 (0.098)	0.2 (0.371)	-0.01 (0.098)	0.27 (0.303)	-0.02 (0.104)	0.27 (0.299)	-0.02 (0.104)
<i>Innov. covar.</i>										
Growth	26.06		25.85 (3.602)		25.63 (3.565)		26.47 (6.963)		26.47 (7.024)	
Int. rate	0.82	1.8	0.81 (0.674)	1.79 (0.249)	0.81 (0.666)	1.77 (0.246)	0.74 (0.909)	1.8 (0.367)	0.74 (0.914)	1.8 (0.37)
Log likelihood	569.7		569.6		574.2		571.6		576.2	

Table 12: 4-lag test VAR for DEU. In restricted MLEs, mean difference is 0.37

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	4.27	-0.08	4.27	-0.08	4.38	-0.09	4.29	-0.06	4.29	-0.06
	(1.069)	(0.362)	(1.12)	(0.379)	(1.093)	(0.36)	(1.243)	(0.38)	(1.196)	(0.34)
LR Mean	8.18	4.14	8.18	4.14	8.35	3.78	7.81	8.16	7.81	8.16
	(0.894)	(2.022)	(0.937)	(2.12)	(0.935)	(1.772)	(1.511)	(11.03)	(1.326)	(4.44)
Growth (-1)	0.55	0.05	0.55	0.05	0.55	0.05	0.54	0.04	0.54	0.04
	(0.095)	(0.032)	(0.099)	(0.034)	(0.098)	(0.033)	(0.135)	(0.029)	(0.138)	(0.031)
Int. rate (-1)	-0.14	0.92	-0.14	0.92	-0.15	0.91	-0.09	0.96	-0.09	0.96
	(0.129)	(0.044)	(0.135)	(0.046)	(0.132)	(0.043)	(0.151)	(0.082)	(0.126)	(0.04)
<i>Innov. covar.</i>										
Growth	19.11		18.86		18.8		18.94		18.94	
			(3.166)		(3.129)		(3.466)		(3.454)	
Int. rate	2.14	2.19	2.11	2.16	2.07	2.14	2.18	2.22	2.18	2.22
			(0.798)	(0.363)	(0.789)	(0.358)	(0.733)	(0.5)	(0.722)	(0.497)
Log likelihood	366.1		366.1		371.6		367.2		373.6	

Table 13: 1-lag test VAR for CAN. In restricted MLEs, mean difference is 0.35

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	4.27	-0.08	4.27	-0.08	4.38	-0.09	4.29	-0.06	4.29	-0.06
	(1.069)	(0.362)	(1.12)	(0.379)	(1.093)	(0.36)	(1.243)	(0.38)	(1.196)	(0.34)
LR Mean	8.18	4.14	8.18	4.14	8.35	3.78	7.81	8.16	7.81	8.16
	(0.894)	(2.022)	(0.937)	(2.12)	(0.935)	(1.772)	(1.511)	(11.03)	(1.326)	(4.44)
Growth (-1)	0.55	0.05	0.55	0.05	0.55	0.05	0.54	0.04	0.54	0.04
	(0.095)	(0.032)	(0.099)	(0.034)	(0.098)	(0.033)	(0.135)	(0.029)	(0.138)	(0.031)
Int. rate (-1)	-0.14	0.92	-0.14	0.92	-0.15	0.91	-0.09	0.96	-0.09	0.96
	(0.129)	(0.044)	(0.135)	(0.046)	(0.132)	(0.043)	(0.151)	(0.082)	(0.126)	(0.04)
<i>Innov. covar.</i>										
Growth	19.11		18.86		18.8		18.94		18.94	
			(3.166)		(3.129)		(3.466)		(3.454)	
Int. rate	2.14	2.19	2.11	2.16	2.07	2.14	2.18	2.22	2.18	2.22
			(0.798)	(0.363)	(0.789)	(0.358)	(0.733)	(0.5)	(0.722)	(0.497)
Log likelihood	366.1		366.1		371.6		367.2		373.6	

Table 14: 1-lag test VAR for CAN. In restricted MLEs, mean difference is 0.35Using AIC opimal lag length 1

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	3.68	-0.38	3.68	-0.38	3.69	-0.47	3.45	-0.5	3.45	-0.5
	(1.44)	(0.489)	(1.623)	(0.552)	(1.559)	(0.509)	(1.684)	(0.512)	(2.618)	(1.192)
LR Mean	8.05	4.27	8.05	4.27	8.13	3.19	8.52	10.67	8.52	10.67
	(0.902)	(2.605)	(1.017)	(2.937)	(1.032)	(2.576)	(2.397)	(40.206)	(5.323)	(6.756)
Growth (-1)	0.71	0.06	0.71	0.06	0.71	0.06	0.72	0.07	0.72	0.07
	(0.122)	(0.041)	(0.138)	(0.047)	(0.136)	(0.047)	(0.172)	(0.03)	(0.208)	(0.056)
Int. rate (-1)	-0.49	0.92	-0.49	0.92	-0.51	0.92	-0.46	0.94	-0.46	0.94
	(0.357)	(0.121)	(0.403)	(0.137)	(0.401)	(0.136)	(0.372)	(0.207)	(0.472)	(0.208)
Growth (-2)	-0.26	-0.02	-0.26	-0.02	-0.26	-0.02	-0.26	-0.02	-0.26	-0.02
	(0.146)	(0.05)	(0.164)	(0.056)	(0.164)	(0.056)	(0.202)	(0.037)	(0.204)	(0.046)
Int. rate (-2)	0.54	-0.17	0.54	-0.17	0.54	-0.17	0.55	-0.17	0.55	-0.17
	(0.503)	(0.171)	(0.567)	(0.193)	(0.566)	(0.192)	(0.406)	(0.282)	(0.412)	(0.288)
Growth (-3)	0.12	0.04	0.12	0.04	0.11	0.04	0.12	0.05	0.12	0.05
	(0.145)	(0.049)	(0.163)	(0.056)	(0.163)	(0.055)	(0.228)	(0.04)	(0.245)	(0.047)
Int. rate (-3)	-0.32	0.06	-0.32	0.06	-0.32	0.06	-0.31	0.06	-0.31	0.06
	(0.506)	(0.172)	(0.57)	(0.194)	(0.568)	(0.193)	(0.496)	(0.201)	(0.511)	(0.204)
Growth (-4)	0.02	0	0.02	0	0.02	0	0.01	-0.01	0.01	-0.01
	(0.114)	(0.039)	(0.128)	(0.044)	(0.127)	(0.043)	(0.128)	(0.031)	(0.168)	(0.051)
Int. rate (-4)	0.18	0.12	0.18	0.12	0.18	0.12	0.22	0.14	0.22	0.14
	(0.361)	(0.123)	(0.407)	(0.138)	(0.405)	(0.138)	(0.382)	(0.153)	(0.4)	(0.188)
<i>Innov. covar.</i>										
Growth	18.34		18.09		18		18.26		18.26	
			(3.331)		(3.285)		(3.786)		(3.905)	
Int. rate	2.08	2.12	2.05	2.09	2.01	2.08	2.13	2.13	2.13	2.13
			(0.844)	(0.385)	(0.837)	(0.382)	(0.81)	(0.595)	(0.745)	(0.599)
Log likelihood	349.2		349.2		354.9		350.1		356.9	

Table 15: 4-lag test VAR for CAN. In restricted MLEs, mean difference is 2.15

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	2.73 (1.683)	0.49 (0.317)	2.73 (1.737)	0.49 (0.327)	2.99 (1.719)	0.55 (0.313)	1.77 (1.042)	0.65 (0.261)	1.77 (1.007)	0.65 (0.238)
LR Mean	6.9 (1.726)	5.96 (1.479)	6.9 (1.781)	5.96 (1.527)	7.06 (1.625)	6.49 (1.362)	4.89 (1.888)	7.07 (1.774)	4.89 (1.703)	7.07 (1.424)
Growth (-1)	0.47 (0.084)	0.03 (0.016)	0.47 (0.087)	0.03 (0.016)	0.48 (0.087)	0.03 (0.016)	0.51 (0.132)	0.03 (0.017)	0.51 (0.131)	0.03 (0.017)
Int. rate (-1)	0.15 (0.231)	0.88 (0.044)	0.15 (0.239)	0.88 (0.045)	0.11 (0.236)	0.88 (0.044)	0.09 (0.195)	0.89 (0.038)	0.09 (0.182)	0.89 (0.036)
<i>Innov. covar.</i>										
Growth	66.2		65.62 (8.971)		65.99 (8.963)		67.01 (12.173)		67.01 (11.673)	
Int. rate	2.82	2.35	2.79 (1.225)	2.33 (0.318)	2.72 (1.233)	2.33 (0.318)	2.57 (1.02)	2.36 (0.541)	2.57 (1.028)	2.36 (0.525)
Log likelihood	612.5		612.5		619.4		615.1		621.4	

Table 16: 1-lag test VAR for JPN. In restricted MLEs, mean difference is 2.18

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	2.73 (1.683)	0.49 (0.317)	2.73 (1.737)	0.49 (0.327)	2.99 (1.719)	0.55 (0.313)	1.77 (1.042)	0.65 (0.261)	1.77 (1.007)	0.65 (0.238)
LR Mean	6.9 (1.726)	5.96 (1.479)	6.9 (1.781)	5.96 (1.527)	7.06 (1.625)	6.49 (1.362)	4.89 (1.888)	7.07 (1.774)	4.89 (1.703)	7.07 (1.424)
Growth (-1)	0.47 (0.084)	0.03 (0.016)	0.47 (0.087)	0.03 (0.016)	0.48 (0.087)	0.03 (0.016)	0.51 (0.132)	0.03 (0.017)	0.51 (0.131)	0.03 (0.017)
Int. rate (-1)	0.15 (0.231)	0.88 (0.044)	0.15 (0.239)	0.88 (0.045)	0.11 (0.236)	0.88 (0.044)	0.09 (0.195)	0.89 (0.038)	0.09 (0.182)	0.89 (0.036)
<i>Innov. covar.</i>										
Growth	66.2		65.62 (8.971)		65.99 (8.963)		67.01 (12.173)		67.01 (11.673)	
Int. rate	2.82	2.35	2.79 (1.225)	2.33 (0.318)	2.72 (1.233)	2.33 (0.318)	2.57 (1.02)	2.36 (0.541)	2.57 (1.028)	2.36 (0.525)
Log likelihood	612.5		612.5		619.4		615.1		621.4	

Table 17: 1-lag test VAR for JPN. In restricted MLEs, mean difference is 2.18Using AIC opimal lag length 1

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	0.69 (1.793)	0.06 (0.326)	0.69 (1.938)	0.06 (0.352)	1.4 (1.774)	0.18 (0.308)	-0.34 (0.953)	-0.09 (0.178)	-0.34 (0.676)	-0.09 (0.113)
LR Mean	4.07 (6.862)	3.1 (6.004)	4.07 (7.418)	3.1 (6.49)	6.95 (3.003)	5.98 (2.586)	-25.6 (221.38)	-21.85 (185.65)	-25.6 (6.631)	-21.85 (5.596)
Growth (-1)	0.48 (0.096)	0.02 (0.017)	0.48 (0.103)	0.02 (0.019)	0.48 (0.104)	0.02 (0.019)	0.48 (0.151)	0.03 (0.018)	0.48 (0.144)	0.03 (0.018)
Int. rate (-1)	-0.74 (0.516)	0.82 (0.094)	-0.74 (0.558)	0.82 (0.101)	-0.79 (0.562)	0.83 (0.102)	-0.72 (0.421)	0.82 (0.111)	-0.72 (0.439)	0.82 (0.114)
Growth (-2)	-0.05 (0.105)	0.02 (0.019)	-0.05 (0.113)	0.02 (0.021)	-0.05 (0.115)	0.02 (0.021)	-0.05 (0.144)	0.02 (0.017)	-0.05 (0.143)	0.02 (0.017)
Int. rate (-2)	0.3 (0.671)	-0.22 (0.122)	0.3 (0.725)	-0.22 (0.132)	0.31 (0.733)	-0.23 (0.132)	0.33 (0.637)	-0.22 (0.145)	0.33 (0.631)	-0.22 (0.145)
Growth (-3)	0.12 (0.105)	0.01 (0.019)	0.12 (0.113)	0.01 (0.021)	0.12 (0.115)	0.01 (0.021)	0.12 (0.15)	0.01 (0.017)	0.12 (0.149)	0.01 (0.017)
Int. rate (-3)	0.27 (0.665)	0.15 (0.121)	0.27 (0.719)	0.15 (0.131)	0.27 (0.727)	0.15 (0.131)	0.29 (0.623)	0.15 (0.1)	0.29 (0.632)	0.15 (0.099)
Growth (-4)	0.03 (0.093)	0 (0.017)	0.03 (0.1)	0 (0.018)	0.03 (0.102)	0 (0.018)	0.03 (0.111)	0 (0.017)	0.03 (0.113)	0 (0.017)
Int. rate (-4)	0.5 (0.515)	0.17 (0.094)	0.5 (0.557)	0.17 (0.101)	0.47 (0.562)	0.16 (0.101)	0.57 (0.488)	0.18 (0.086)	0.57 (0.509)	0.18 (0.094)
<i>Innov. covar.</i>										
Growth	61.12		60.58 (8.79)		61.42 (8.959)		60.78 (11.773)		60.78 (16.471)	
Int. rate	2.01	2.02	1.99 (1.148)	2 (0.29)	1.92 (1.17)	2.02 (0.293)	2.02 (0.869)	2 (0.506)	2.02 (1.052)	2 (0.511)
Log likelihood	584.6		584.6		592.4		584.9		597	

Table 18: 4-lag test VAR for JPN. In restricted MLEs, mean difference is 3.75

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.95 (1.071)	0.34 (0.257)	1.95 (1.105)	0.34 (0.265)	1.98 (1.062)	0.34 (0.25)	1.28 (0.78)	0.46 (0.252)	1.28 (0.719)	0.46 (0.232)
LR Mean	7.31 (2.032)	5.88 (1.756)	7.31 (2.096)	5.88 (1.812)	7.11 (1.911)	5.62 (1.582)	5.29 (2.212)	6.27 (1.887)	5.29 (2.007)	6.27 (1.612)
Growth (-1)	0.67 (0.077)	0.04 (0.018)	0.67 (0.079)	0.04 (0.019)	0.66 (0.077)	0.04 (0.019)	0.69 (0.105)	0.04 (0.022)	0.69 (0.103)	0.04 (0.022)
Int. rate (-1)	0.08 (0.163)	0.89 (0.039)	0.08 (0.168)	0.89 (0.04)	0.08 (0.164)	0.88 (0.039)	0.05 (0.137)	0.89 (0.044)	0.05 (0.132)	0.89 (0.04)
<i>Innov. covar.</i>										
Growth	37.45		37.13 (5.029)		36.74 (4.944)		37.58 (7.682)		37.58 (7.774)	
Int. rate	3.21	2.16	3.18 (0.906)	2.14 (0.29)	3.14 (0.892)	2.13 (0.287)	3.1 (1.077)	2.15 (0.565)	3.1 (1.086)	2.15 (0.57)
Log likelihood	580		580		585.3		581.7		587.3	

Table 19: 1-lag test VAR for ITA. In restricted MLEs, mean difference is 0.98

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.64 (1.038)	0.24 (0.268)	1.64 (1.103)	0.24 (0.285)	1.6 (1.066)	0.31 (0.27)	-0.23 (0.825)	0.11 (0.261)	-0.23 (0.987)	0.11 (0.392)
LR Mean	7.76 (2.75)	5.94 (1.952)	7.76 (2.921)	5.94 (2.074)	6.95 (2.741)	5.77 (1.736)	-3.4 (23.435)	-0.73 (15.444)	-3.4 (7.785)	-0.73 (3.183)
Growth (-1)	0.56 (0.095)	0.06 (0.024)	0.56 (0.1)	0.06 (0.026)	0.56 (0.1)	0.05 (0.026)	0.59 (0.139)	0.06 (0.029)	0.59 (0.143)	0.06 (0.036)
Int. rate (-1)	-0.54 (0.387)	0.78 (0.1)	-0.54 (0.411)	0.78 (0.106)	-0.56 (0.411)	0.77 (0.106)	-0.54 (0.314)	0.78 (0.154)	-0.54 (0.397)	0.78 (0.156)
Growth (-2)	0 (0.107)	-0.02 (0.028)	0 (0.114)	-0.02 (0.03)	0 (0.114)	-0.02 (0.029)	0.01 (0.181)	-0.02 (0.018)	0.01 (0.186)	-0.02 (0.021)
Int. rate (-2)	0.44 (0.505)	0.1 (0.131)	0.44 (0.536)	0.1 (0.139)	0.44 (0.538)	0.09 (0.138)	0.47 (0.517)	0.1 (0.251)	0.47 (0.511)	0.1 (0.251)
Growth (-3)	0.31 (0.093)	0.02 (0.024)	0.31 (0.098)	0.02 (0.025)	0.31 (0.098)	0.02 (0.025)	0.32 (0.107)	0.02 (0.015)	0.32 (0.114)	0.02 (0.017)
Int. rate (-3)	0 (0.376)	0.02 (0.097)	0 (0.4)	0.02 (0.103)	0 (0.401)	0.02 (0.103)	0.13 (0.365)	0.03 (0.166)	0.13 (0.367)	0.03 (0.164)
<i>Innov. covar.</i>										
Growth	32.03		31.75 (4.468)		31.81 (4.48)		32.69 (7.878)		32.69 (7.776)	
Int. rate	3.03	2.14	3 (0.87)	2.12 (0.299)	2.96 (0.868)	2.11 (0.296)	3.06 (1.106)	2.13 (0.581)	3.06 (1.144)	2.13 (0.587)
Log likelihood	560.3		560.3		566.5		562		568.8	

Table 20: 3-lag test VAR for ITA. In restricted MLEs, mean difference is 2.67Using AIC opimal lag length 3

	OLS		MLE		UMLE		Rest MLE		Rest UMLE	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>										
Constant	1.68 (1.063)	0.22 (0.276)	1.68 (1.148)	0.22 (0.298)	1.65 (1.099)	0.27 (0.28)	0 (0.911)	-0.08 (0.309)	0 (0.247)	-0.08 (0.087)
LR Mean	7.81 (2.587)	5.94 (2.015)	7.81 (2.792)	5.94 (2.174)	7.21 (2.568)	5.72 (1.816)	-29.25 (1032.206)	-26.58 (917.861)	-29.25 (9.417)	-26.58 (8.258)
Growth (-1)	0.59 (0.101)	0.06 (0.026)	0.59 (0.109)	0.06 (0.028)	0.58 (0.108)	0.06 (0.028)	0.61 (0.162)	0.06 (0.031)	0.61 (0.153)	0.06 (0.028)
Int. rate (-1)	-0.54 (0.39)	0.78 (0.101)	-0.54 (0.421)	0.78 (0.109)	-0.55 (0.419)	0.77 (0.108)	-0.5 (0.333)	0.79 (0.158)	-0.5 (0.306)	0.79 (0.158)
Growth (-2)	0 (0.108)	-0.02 (0.028)	0 (0.117)	-0.02 (0.03)	0 (0.117)	-0.02 (0.03)	0 (0.187)	-0.02 (0.02)	0 (0.188)	-0.02 (0.021)
Int. rate (-2)	0.42 (0.506)	0.09 (0.132)	0.42 (0.547)	0.09 (0.142)	0.42 (0.545)	0.09 (0.141)	0.46 (0.512)	0.1 (0.26)	0.46 (0.51)	0.1 (0.259)
Growth (-3)	0.34 (0.108)	0.02 (0.028)	0.34 (0.116)	0.02 (0.03)	0.34 (0.116)	0.02 (0.03)	0.35 (0.129)	0.02 (0.018)	0.35 (0.126)	0.02 (0.018)
Int. rate (-3)	0.14 (0.509)	-0.01 (0.132)	0.14 (0.55)	-0.01 (0.143)	0.14 (0.549)	-0.01 (0.142)	0.16 (0.447)	0 (0.178)	0.16 (0.443)	0 (0.178)
Growth (-4)	-0.09 (0.097)	0 (0.025)	-0.09 (0.105)	0 (0.027)	-0.09 (0.105)	0 (0.027)	-0.1 (0.151)	-0.01 (0.02)	-0.1 (0.146)	-0.01 (0.02)
Int. rate (-4)	-0.1 (0.379)	0.03 (0.098)	-0.1 (0.409)	0.03 (0.106)	-0.09 (0.408)	0.03 (0.105)	0.04 (0.305)	0.05 (0.132)	0.04 (0.283)	0.05 (0.121)
<i>Innov. covar.</i>										
Growth	32.02		31.74 (4.557)		31.62 (4.499)		32.58 (7.48)		32.58 (7.16)	
Int. rate	3.06	2.16	3.03 (0.892)	2.14 (0.307)	3 (0.882)	2.13 (0.304)	3.18 (1.168)	2.17 (0.602)	3.18 (1.088)	2.17 (0.572)
Log likelihood	555.7		555.7		561.4		557.4		565.6	

Table 21: 4-lag test VAR for ITA. In restricted MLEs, mean difference is 2.67

	USA		France		United Kingdom		Germany		Japan		Italy		Canada	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>														
Constant	4.79 (1.106)	0.51 (0.255)	1.67 (0.689)	0.16 (0.178)	1.47 (0.98)	0.29 (0.204)	3.59 (1.148)	0.86 (0.295)	2.99 (1.719)	0.55 (0.313)	1.98 (1.062)	0.34 (0.25)	4.38 (1.093)	-0.09 (0.36)
LR Mean	6.11 (0.901)	3.95 (0.737)	5.6 (1.341)	3.97 (1.23)	5.7 (1.76)	3.97 (1.365)	5.88 (1.195)	4.07 (0.458)	7.06 (1.625)	6.49 (1.362)	7.11 (1.911)	5.62 (1.582)	8.35 (0.935)	3.78 (1.772)
Growth (-1)	0.43 (0.081)	0.03 (0.019)	0.65 (0.071)	0.06 (0.019)	0.52 (0.088)	0.02 (0.019)	0.65 (0.071)	0.04 (0.019)	0.48 (0.087)	0.03 (0.016)	0.66 (0.077)	0.04 (0.019)	0.55 (0.098)	0.05 (0.033)
Int. rate (-1)	-0.34 (0.214)	0.82 (0.049)	0.07 (0.136)	0.88 (0.035)	0.32 (0.202)	0.9 (0.042)	-0.37 (0.239)	0.73 (0.062)	0.11 (0.236)	0.88 (0.044)	0.08 (0.164)	0.88 (0.039)	-0.15 (0.132)	0.91 (0.043)
<i>Innov. covar.</i>														
Growth	44.71 (5.618)		21.77 (2.74)		33.87 (4.678)		27.39 (3.594)		65.99 (8.963)		36.74 (4.944)		18.8 (3.129)	
Int. rate	3.29 (0.968)	2.41 (0.304)	1.45 (0.523)	1.49 (0.187)	2.15 (0.749)	1.6 (0.22)	0.91 (0.673)	1.88 (0.248)	2.72 (1.233)	2.33 (0.318)	3.14 (0.892)	2.13 (0.287)	2.07 (0.789)	2.14 (0.358)
Log likelihood	687.5		610		542.1		596.1		619.4		585.3		371.6	

Table 22: 1-lag VAR for sample of countries. Annual data 1880-2013. Robust likelihood-based standard errors in parentheses.



	USA		France		United Kingdom		Germany		Japan		Italy		Canada	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>														
Constant	4.4 (1.388)	0.31 (0.304)	1.53 (0.749)	0.05 (0.185)	1.46 (1.097)	0.24 (0.217)	2.94 (1.425)	0.71 (0.373)	1.4 (1.774)	0.18 (0.308)	1.65 (1.099)	0.27 (0.28)	3.69 (1.559)	-0.47 (0.509)
LR Mean	5.96 (0.853)	3.84 (0.942)	5.49 (1.598)	3.87 (1.654)	5.67 (1.943)	4.02 (1.542)	5.96 (1.231)	4.04 (0.543)	6.95 (3.003)	5.98 (2.586)	7.21 (2.568)	5.72 (1.816)	8.13 (1.032)	3.19 (2.576)
Growth (-1)	0.49 (0.1)	0.01 (0.022)	0.64 (0.097)	0.06 (0.025)	0.43 (0.107)	0 (0.023)	0.76 (0.097)	0.06 (0.026)	0.48 (0.104)	0.02 (0.019)	0.58 (0.108)	0.06 (0.028)	0.71 (0.136)	0.06 (0.047)
Int. rate (-1)	-0.91 (0.452)	0.96 (0.101)	-0.4 (0.381)	0.96 (0.097)	0.51 (0.515)	1.08 (0.108)	-0.5 (0.372)	0.79 (0.098)	-0.79 (0.562)	0.83 (0.102)	-0.55 (0.419)	0.77 (0.108)	-0.51 (0.401)	0.92 (0.136)
Growth (-2)	0.01 (0.108)	0.02 (0.024)	0.17 (0.114)	-0.01 (0.029)	0.18 (0.116)	0.02 (0.024)	-0.26 (0.121)	-0.05 (0.032)	-0.05 (0.115)	0.02 (0.021)	0 (0.117)	-0.02 (0.03)	-0.26 (0.164)	-0.02 (0.056)
Int. rate (-2)	0.91 (0.622)	-0.43 (0.139)	0.29 (0.537)	-0.33 (0.137)	-0.18 (0.728)	-0.47 (0.154)	0.35 (0.48)	-0.14 (0.126)	0.31 (0.733)	-0.23 (0.132)	0.42 (0.545)	0.09 (0.141)	0.54 (0.566)	-0.17 (0.192)
Growth (-3)	-0.08 (0.106)	0.02 (0.024)	-0.14 (0.113)	-0.01 (0.029)	0.12 (0.115)	0.02 (0.024)	0.28 (0.122)	0.02 (0.032)	0.12 (0.115)	0.01 (0.021)	0.34 (0.116)	0.02 (0.03)	0.11 (0.163)	0.04 (0.055)
Int. rate (-3)	-0.53 (0.622)	0.37 (0.139)	0.35 (0.537)	0.16 (0.137)	-0.07 (0.726)	0.32 (0.153)	-0.25 (0.475)	0.11 (0.125)	0.27 (0.727)	0.15 (0.131)	0.14 (0.549)	-0.01 (0.142)	-0.32 (0.568)	0.06 (0.193)
Growth (-4)	-0.04 (0.094)	-0.01 (0.021)	-0.07 (0.097)	0.02 (0.025)	-0.17 (0.106)	-0.01 (0.022)	-0.14 (0.098)	0.03 (0.026)	0.03 (0.102)	0 (0.018)	-0.09 (0.105)	0 (0.027)	0.02 (0.127)	0 (0.043)
Int. rate (-4)	0.35 (0.449)	-0.05 (0.1)	-0.08 (0.366)	0.09 (0.093)	0.01 (0.502)	-0.03 (0.106)	0.2 (0.371)	-0.01 (0.098)	0.47 (0.562)	0.16 (0.101)	-0.09 (0.408)	0.03 (0.105)	0.18 (0.405)	0.12 (0.138)
<i>Innov. covar.</i>														
Growth	43.56 (5.788)		20.94 (2.774)		32.22 (4.769)		25.63 (3.565)		61.42 (8.959)		31.62 (4.499)		18 (3.285)	
Int. rate	3.69 (0.972)	2.17 (0.287)	1.55 (0.52)	1.36 (0.18)	2.04 (0.739)	1.44 (0.211)	0.81 (0.666)	1.77 (0.246)	1.92 (1.17)	2.02 (0.293)	3 (0.882)	2.13 (0.304)	2.01 (0.837)	2.08 (0.382)
Log likelihood	660.3		586.5		519.2		574.2		592.4		561.4		354.9	

Table 23: Multi-lag VAR for sample of countries. Annual data 1880-2013. Robust likelihood-based standard errors in parentheses.

	USA		France		United Kingdom		Germany		Japan		Italy		Canada	
	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate	Growth	Int. rate
<i>Coefficients</i>														
Constant	4.37 (1.394)	0.32 (0.271)	1.3 (0.578)	-0.09 (0.188)	0.17 (11.488)	-0.06 (1.119)	1.65 (1.255)	0.85 (0.301)	-0.34 (0.676)	-0.09 (0.113)	0 (0.247)	-0.08 (0.087)	3.45 (2.618)	-0.5 (1.192)
LR Mean	5.66 (0.88)	5.6 (1.806)	10.24 (2.538)	10.21 (3.836)	-4.29 (43.88)	-4.03 (4.384)	3.6 (1.827)	3.97 (0.608)	-25.6 (6.631)	-21.85 (5.596)	-29.25 (9.417)	-26.58 (8.258)	8.52 (5.323)	10.67 (6.756)
Growth (-1)	0.49 (0.134)	0.01 (0.019)	0.65 (0.084)	0.06 (0.024)	0.44 (0.32)	0.01 (0.124)	0.79 (0.174)	0.06 (0.032)	0.48 (0.144)	0.03 (0.018)	0.61 (0.153)	0.06 (0.028)	0.72 (0.208)	0.07 (0.056)
Int. rate (-1)	-0.89 (0.441)	0.99 (0.127)	-0.35 (0.444)	0.98 (0.099)	0.57 (1.784)	1.1 (0.369)	-0.54 (0.357)	0.8 (0.115)	-0.72 (0.439)	0.82 (0.114)	-0.5 (0.306)	0.79 (0.158)	-0.46 (0.472)	0.94 (0.208)
Growth (-2)	0.01 (0.164)	0.02 (0.019)	0.17 (0.161)	-0.01 (0.034)	0.18 (0.161)	0.02 (0.06)	-0.25 (0.173)	-0.05 (0.028)	-0.05 (0.143)	0.02 (0.017)	0 (0.188)	-0.02 (0.021)	-0.26 (0.204)	-0.02 (0.046)
Int. rate (-2)	0.91 (0.684)	-0.43 (0.126)	0.3 (0.521)	-0.32 (0.18)	-0.15 (0.538)	-0.46 (0.243)	0.38 (0.492)	-0.14 (0.159)	0.33 (0.631)	-0.22 (0.145)	0.46 (0.51)	0.1 (0.259)	0.55 (0.412)	-0.17 (0.288)
Growth (-3)	-0.08 (0.142)	0.02 (0.019)	-0.14 (0.129)	-0.01 (0.03)	0.12 (0.192)	0.02 (0.072)	0.3 (0.166)	0.01 (0.032)	0.12 (0.149)	0.01 (0.017)	0.35 (0.126)	0.02 (0.018)	0.12 (0.245)	0.05 (0.047)
Int. rate (-3)	-0.52 (0.657)	0.39 (0.124)	0.37 (0.496)	0.17 (0.198)	-0.06 (0.737)	0.32 (0.266)	-0.26 (0.45)	0.11 (0.188)	0.29 (0.632)	0.15 (0.099)	0.16 (0.443)	0 (0.178)	-0.31 (0.511)	0.06 (0.204)
Growth (-4)	-0.05 (0.11)	-0.02 (0.016)	-0.08 (0.163)	0.02 (0.028)	-0.18 (0.374)	-0.02 (0.109)	-0.12 (0.097)	0.03 (0.022)	0.03 (0.113)	0 (0.017)	-0.1 (0.146)	-0.01 (0.02)	0.01 (0.168)	-0.01 (0.051)
Int. rate (-4)	0.35 (0.368)	-0.04 (0.115)	-0.04 (0.26)	0.11 (0.102)	0.14 (1.044)	-0.01 (0.197)	0.27 (0.299)	-0.02 (0.104)	0.57 (0.509)	0.18 (0.094)	0.04 (0.283)	0.05 (0.121)	0.22 (0.4)	0.14 (0.188)
<i>Innov. covar.</i>														
Growth	43.83 (7.945)		21.14 (6.755)		32.82 (15.554)		26.47 (7.024)		60.78 (16.471)		32.58 (7.16)		18.26 (3.905)	
Int. rate	3.75 (1.065)	2.24 (0.346)	1.61 (0.681)	1.39 (0.256)	2.17 (1.242)	1.47 (0.37)	0.74 (0.914)	1.8 (0.37)	2.02 (1.052)	2 (0.511)	3.18 (1.088)	2.17 (0.572)	2.13 (0.745)	2.13 (0.599)
Log likelihood	662.2		588.9		521.7		576.2		597		565.6		356.9	

Table 24: Multi-lag restricted VAR for sample of countries. Lon-run means are restricted to be at the 5% critical value under the unconditional LR test. Annual data 1880-2013. Robust likelihood-based standard errors in parentheses

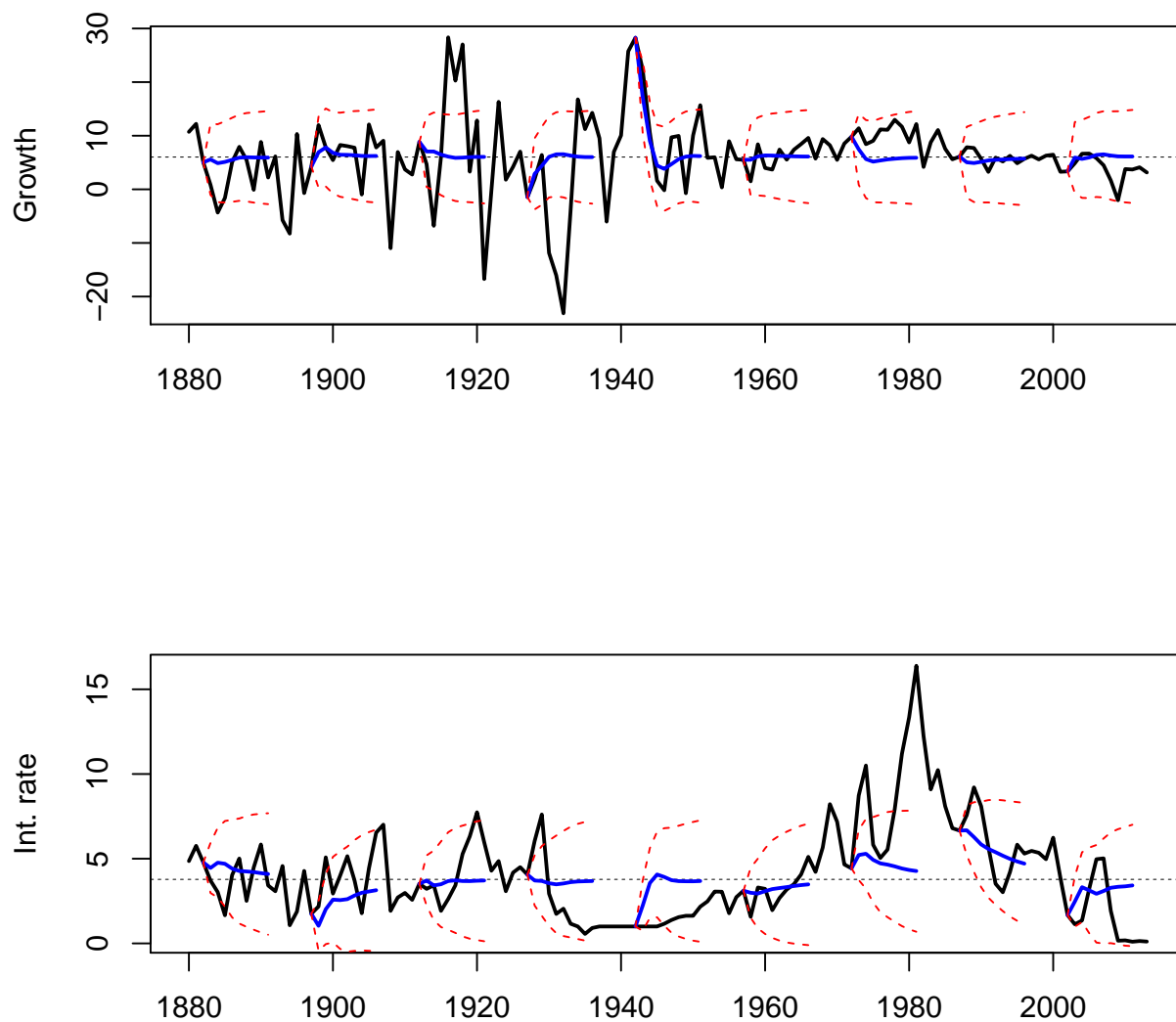


Figure 1: Conditional optimal lag MLE in-sample forecasts for USA

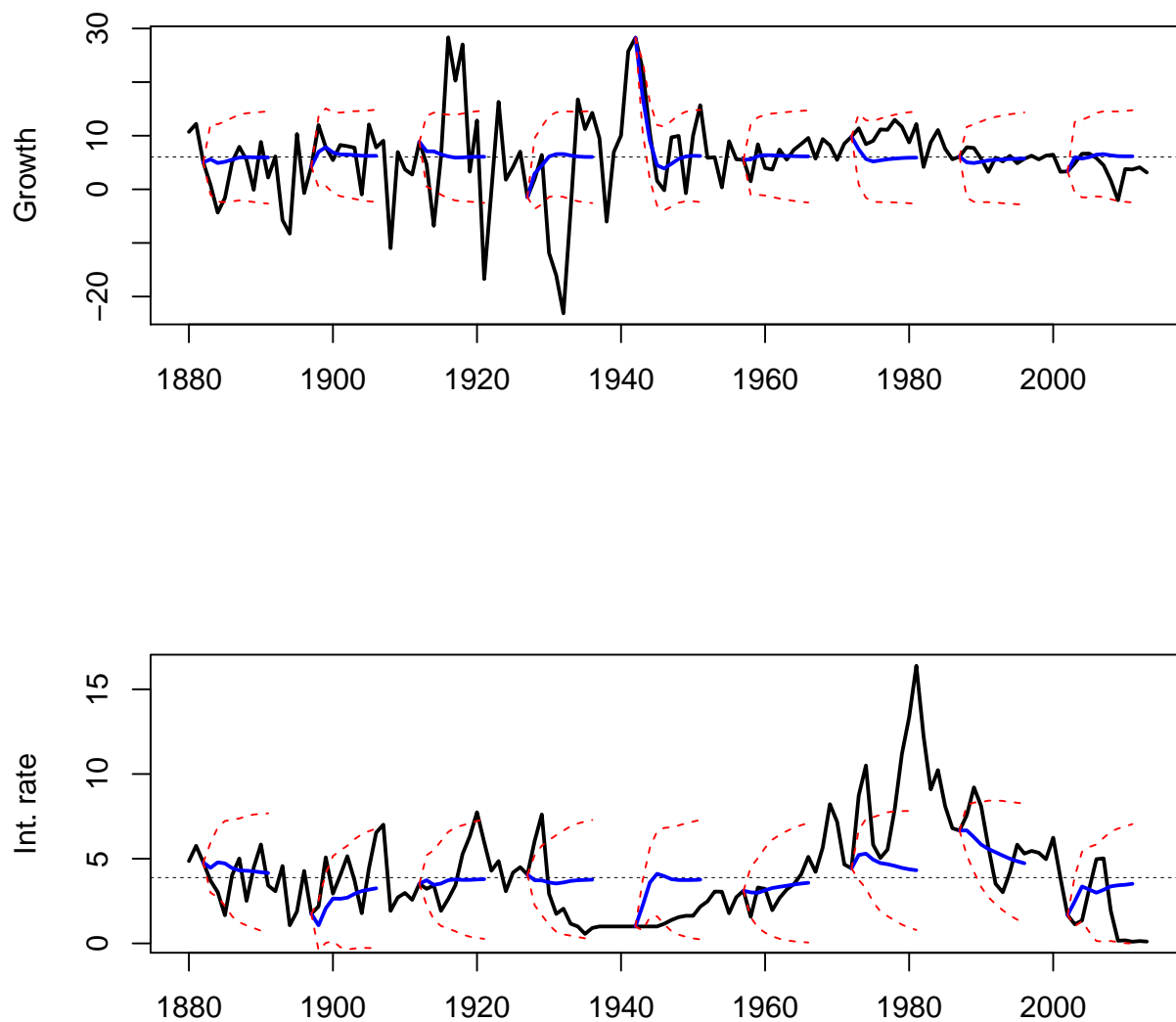


Figure 2: Unconditional optimal lag MLE in-sample forecasts for USA

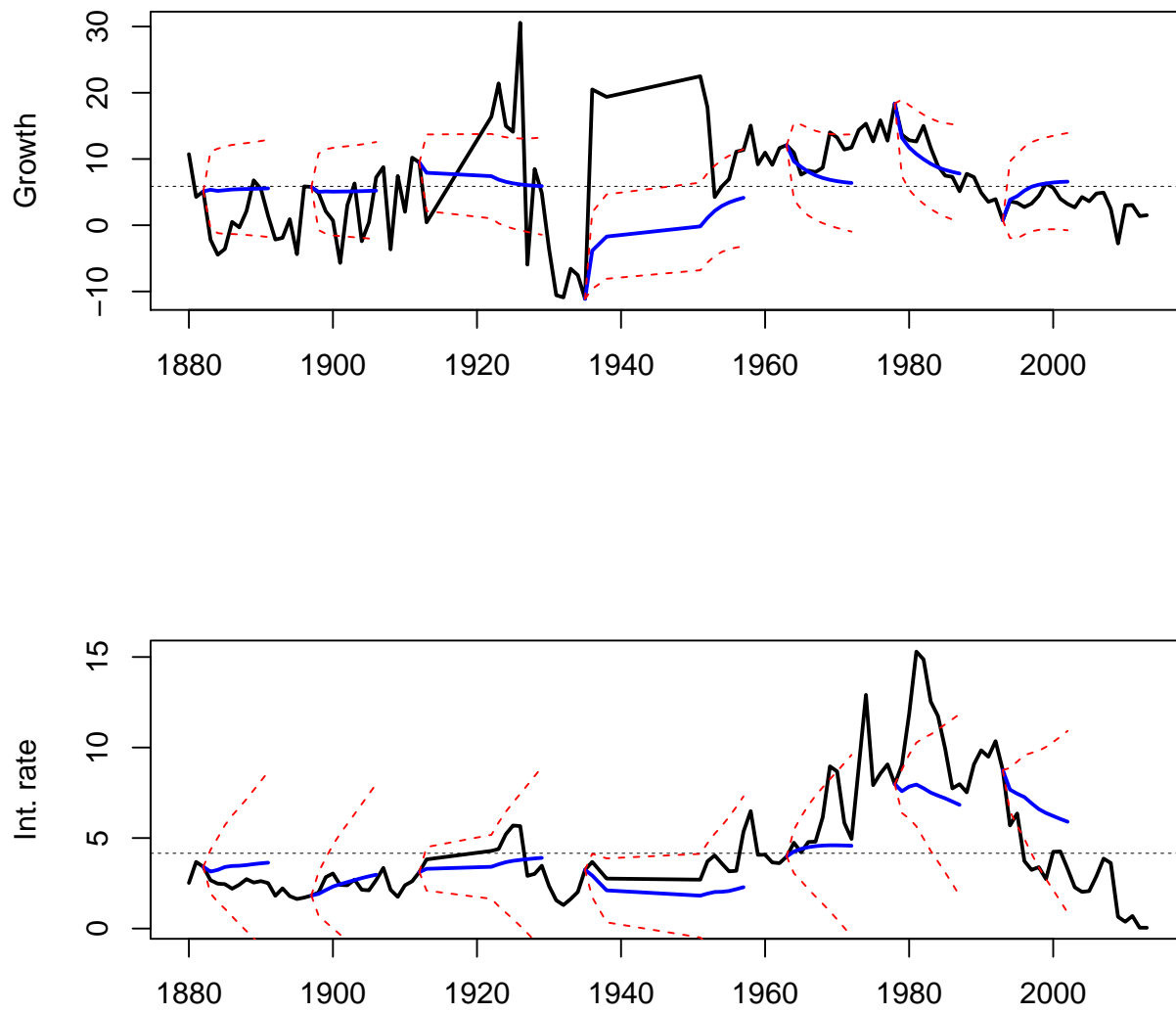


Figure 3: Conditional optimal lag MLE in-sample forecasts for France

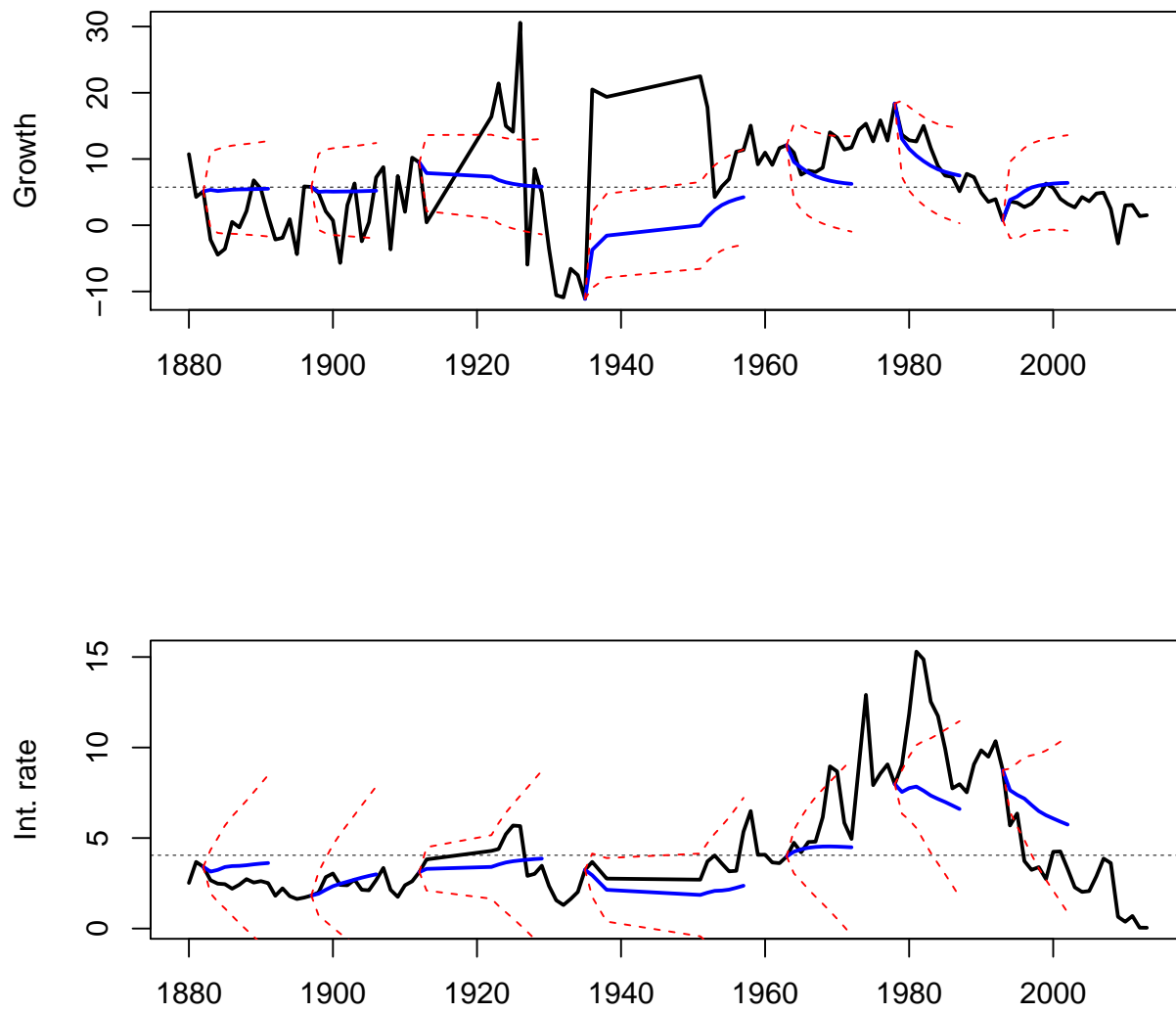


Figure 4: Unconditional optimal lag MLE in-sample forecasts for France

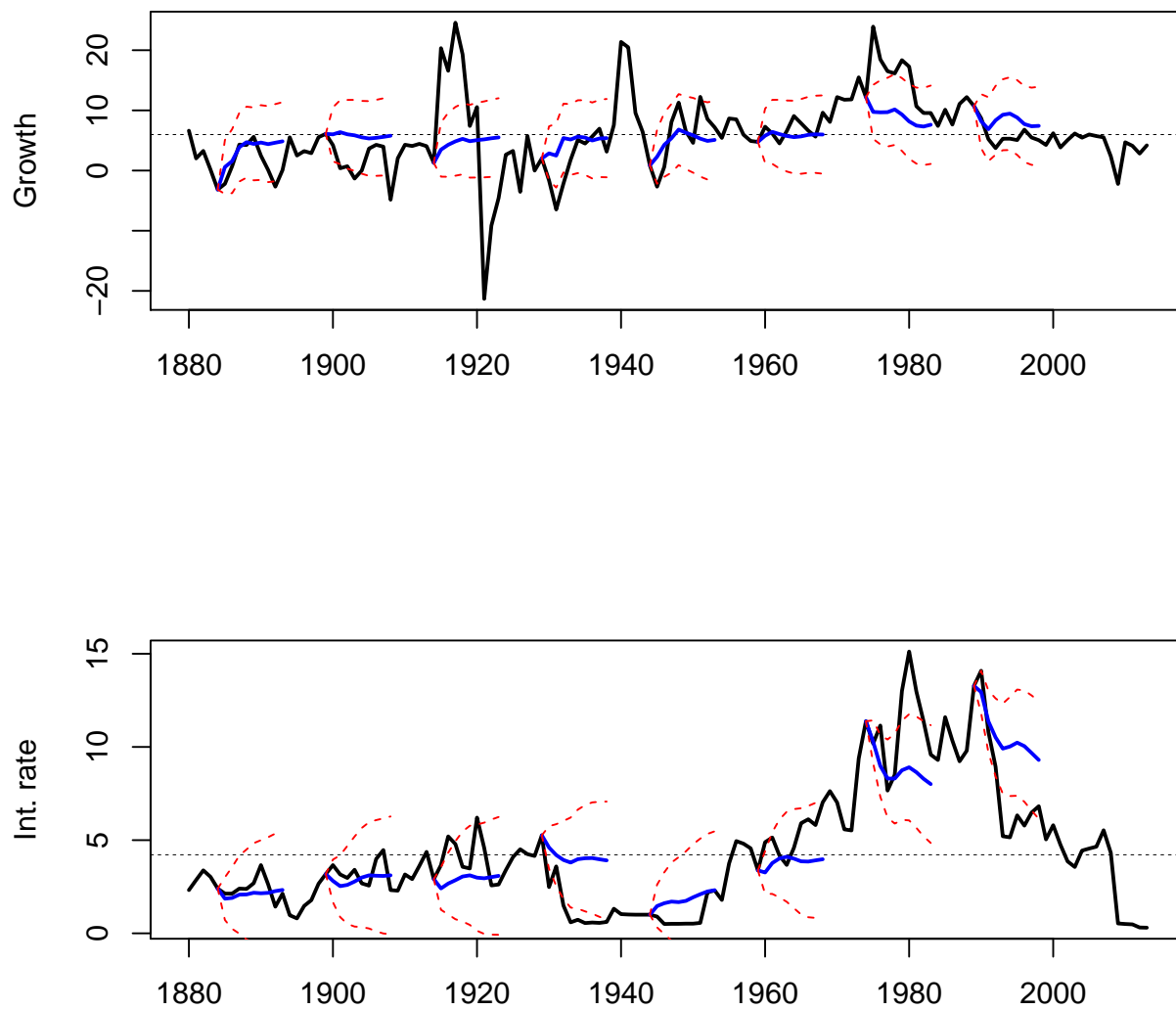


Figure 5: Conditional optimal lag MLE in-sample forecasts for UK

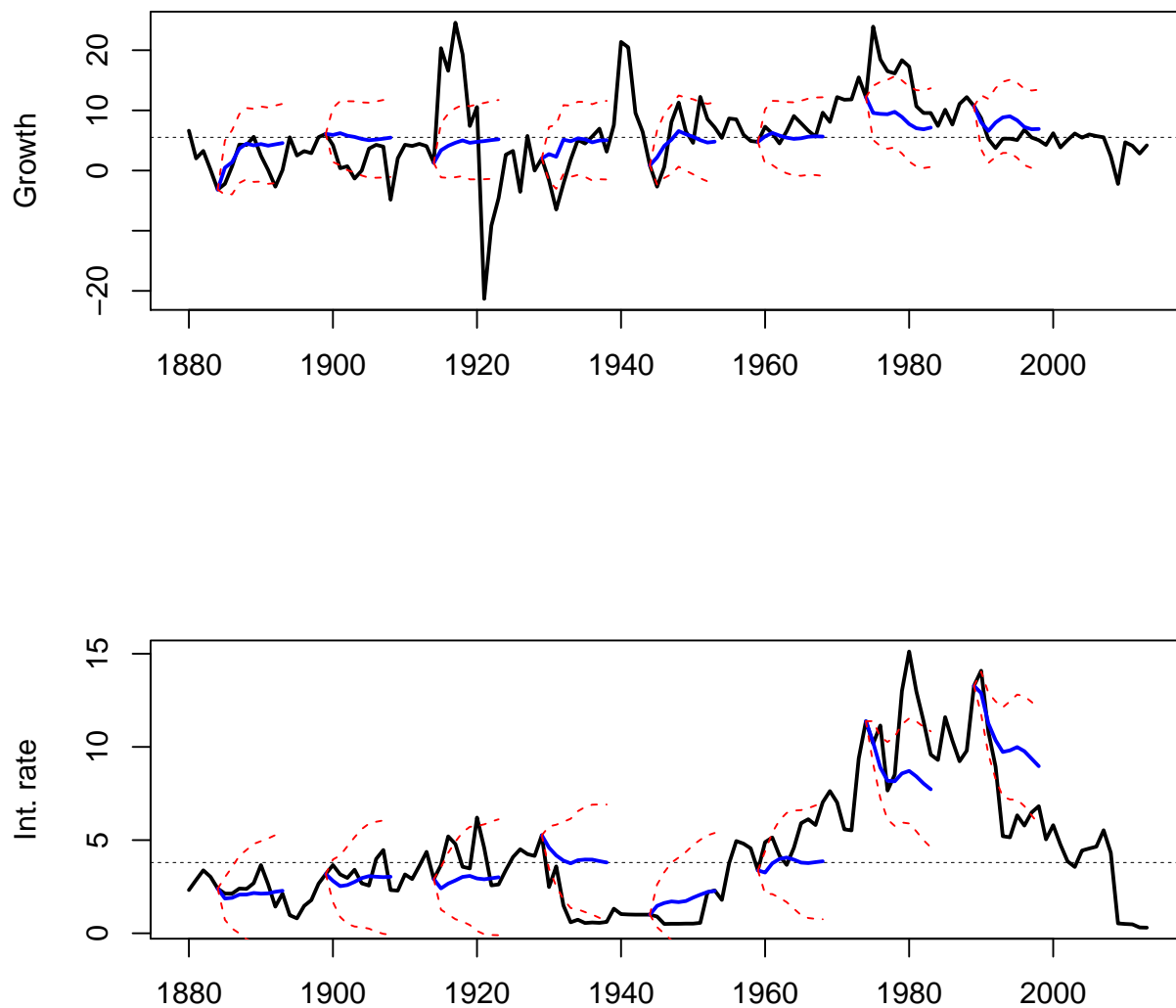


Figure 6: Unconditional optimal lag MLE in-sample forecasts for UK

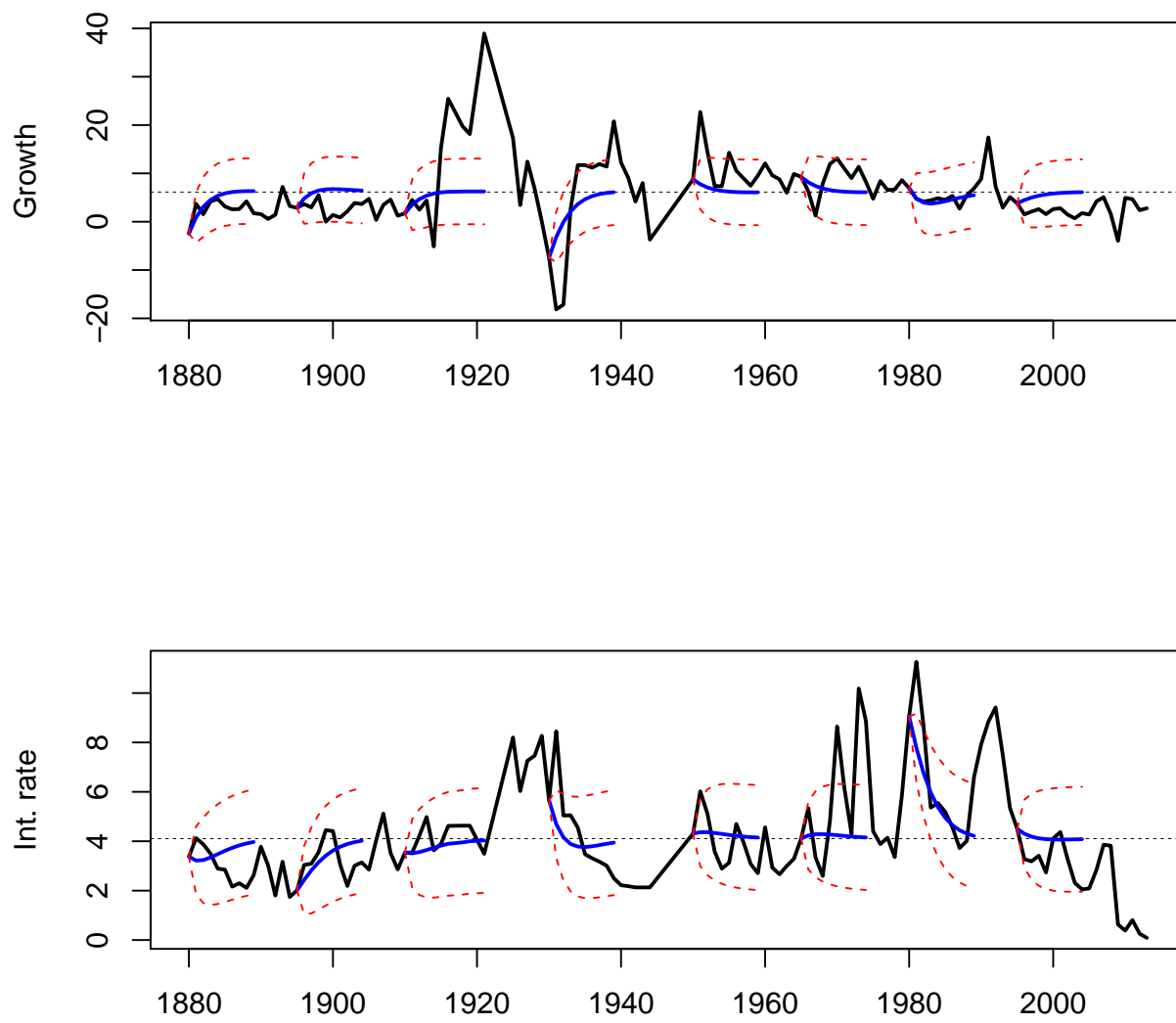


Figure 7: Conditional optimal lag MLE in-sample forecasts for Germany



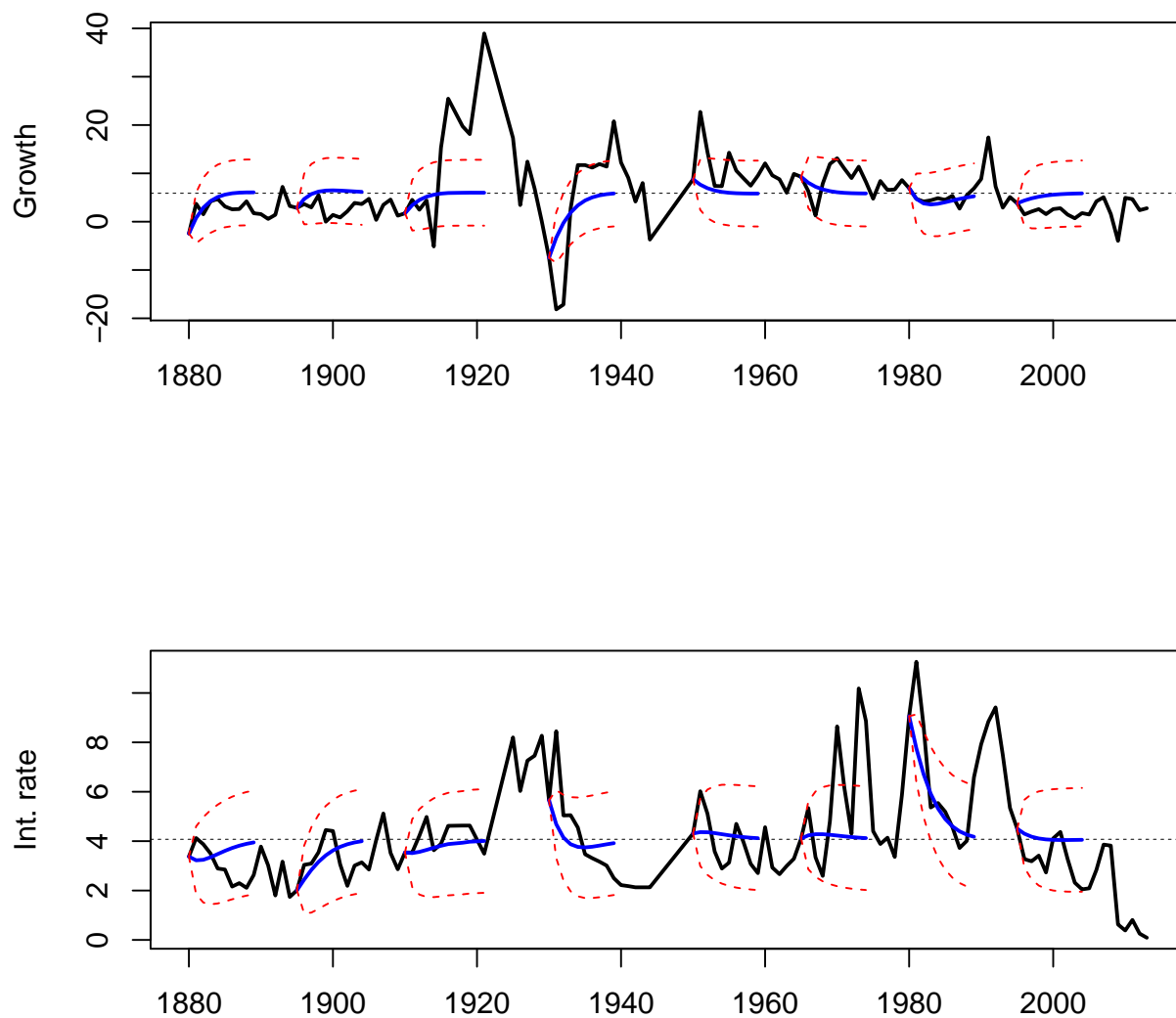


Figure 8: Unconditional optimal lag MLE in-sample forecasts for Germany

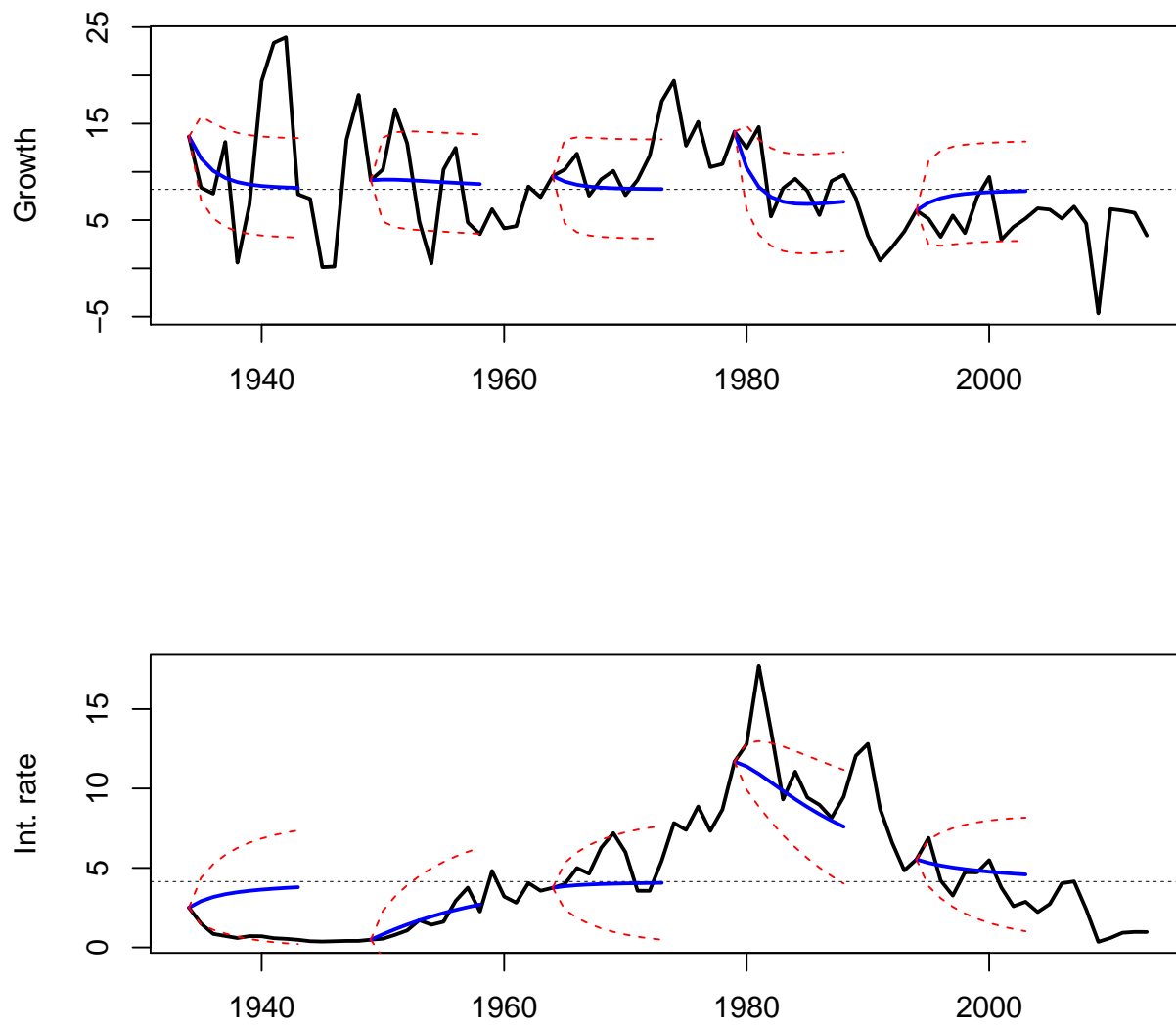


Figure 9: Conditional optimal lag MLE in-sample forecasts for Canada

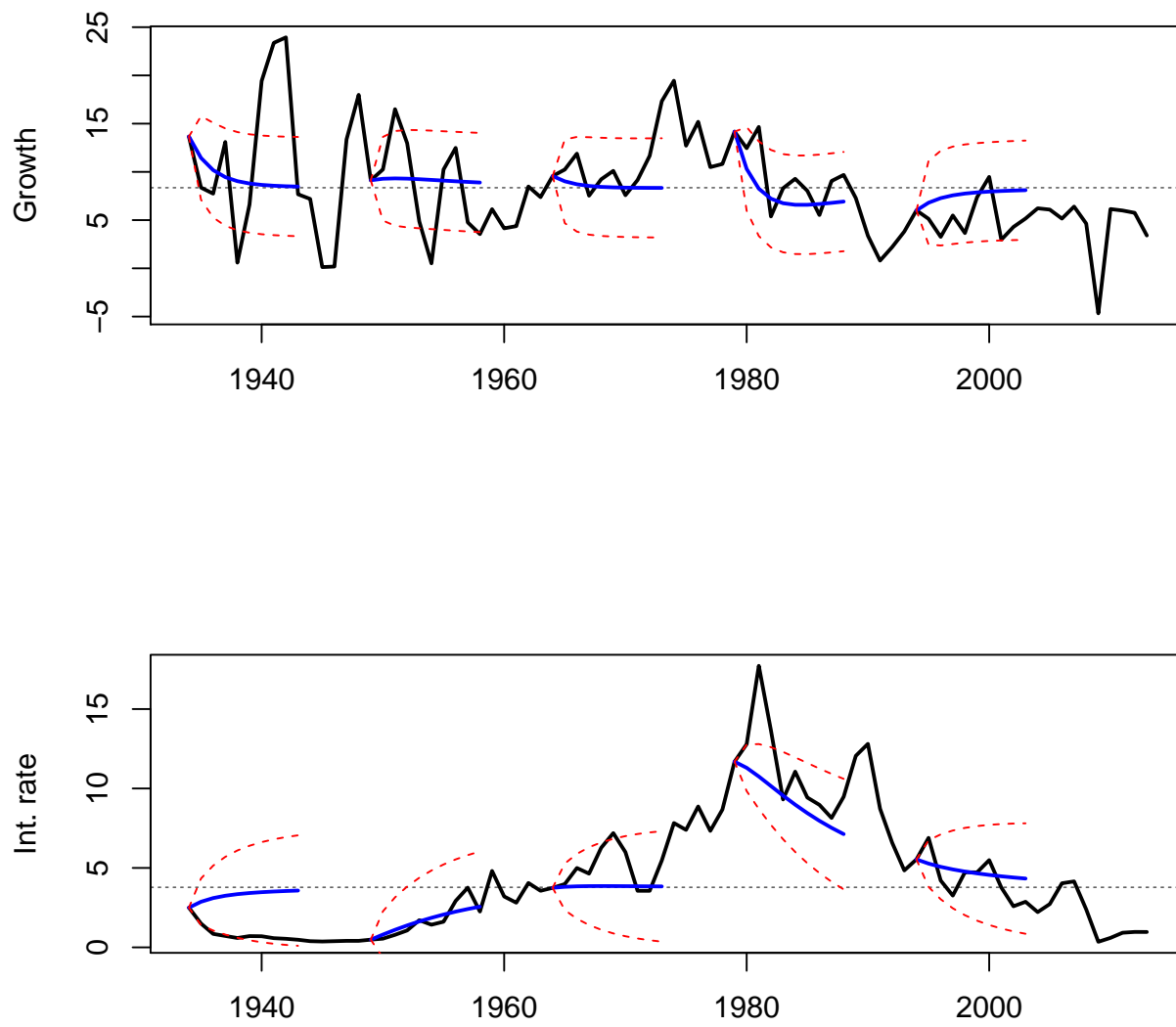


Figure 10: Unconditional optimal lag MLE in-sample forecasts for Canada

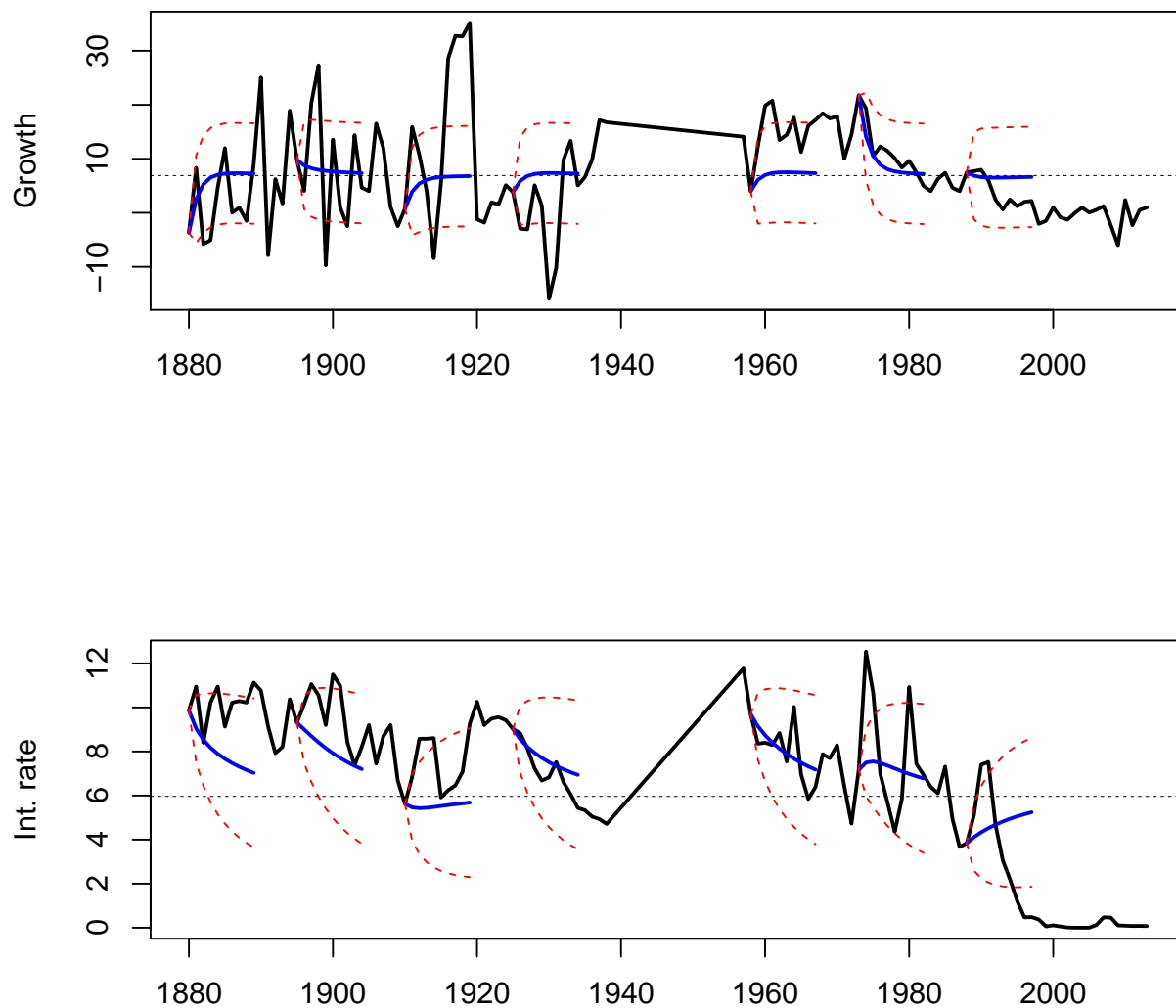


Figure 11: Conditional optimal lag MLE in-sample forecasts for Japan

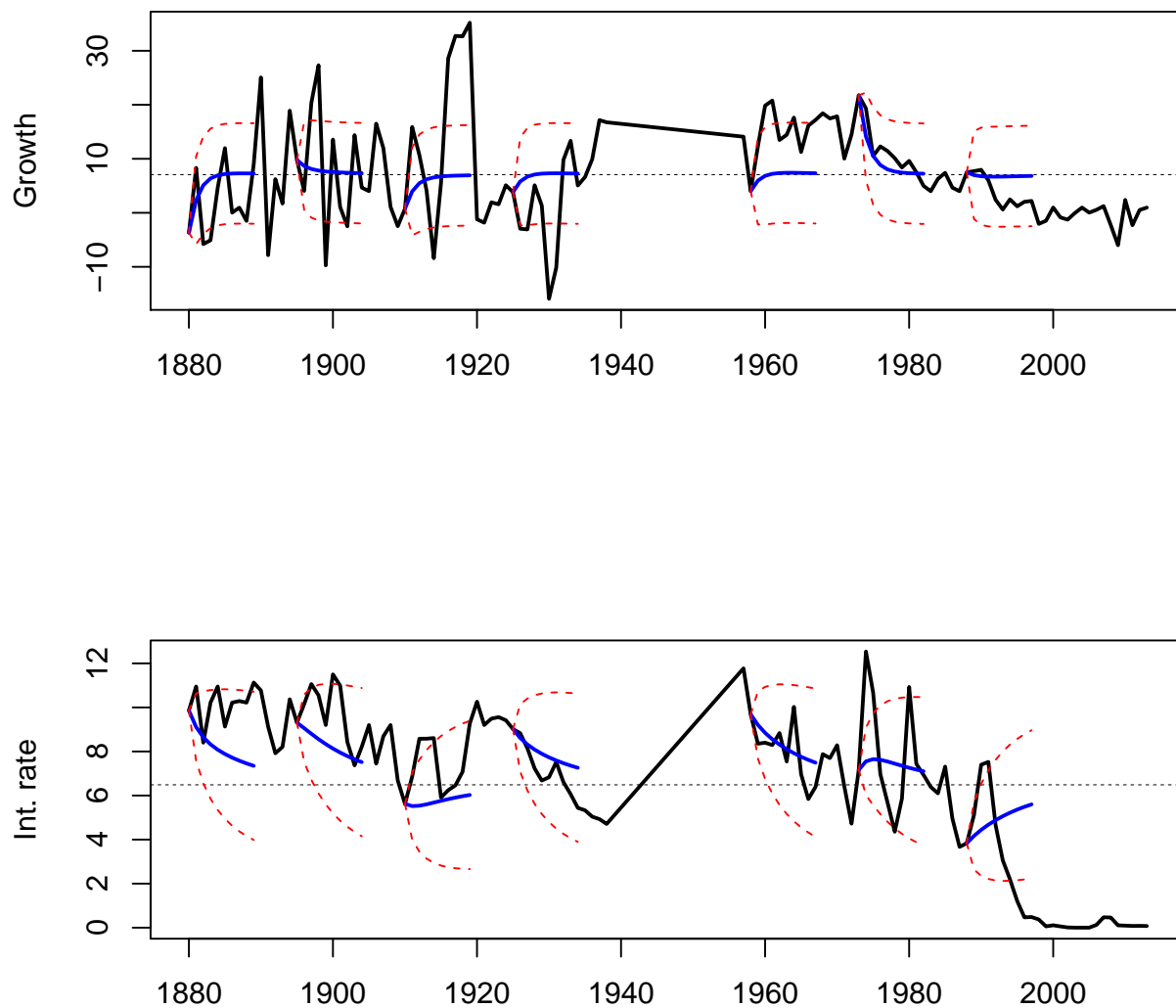


Figure 12: Unconditional optimal lag MLE in-sample forecasts for Japan

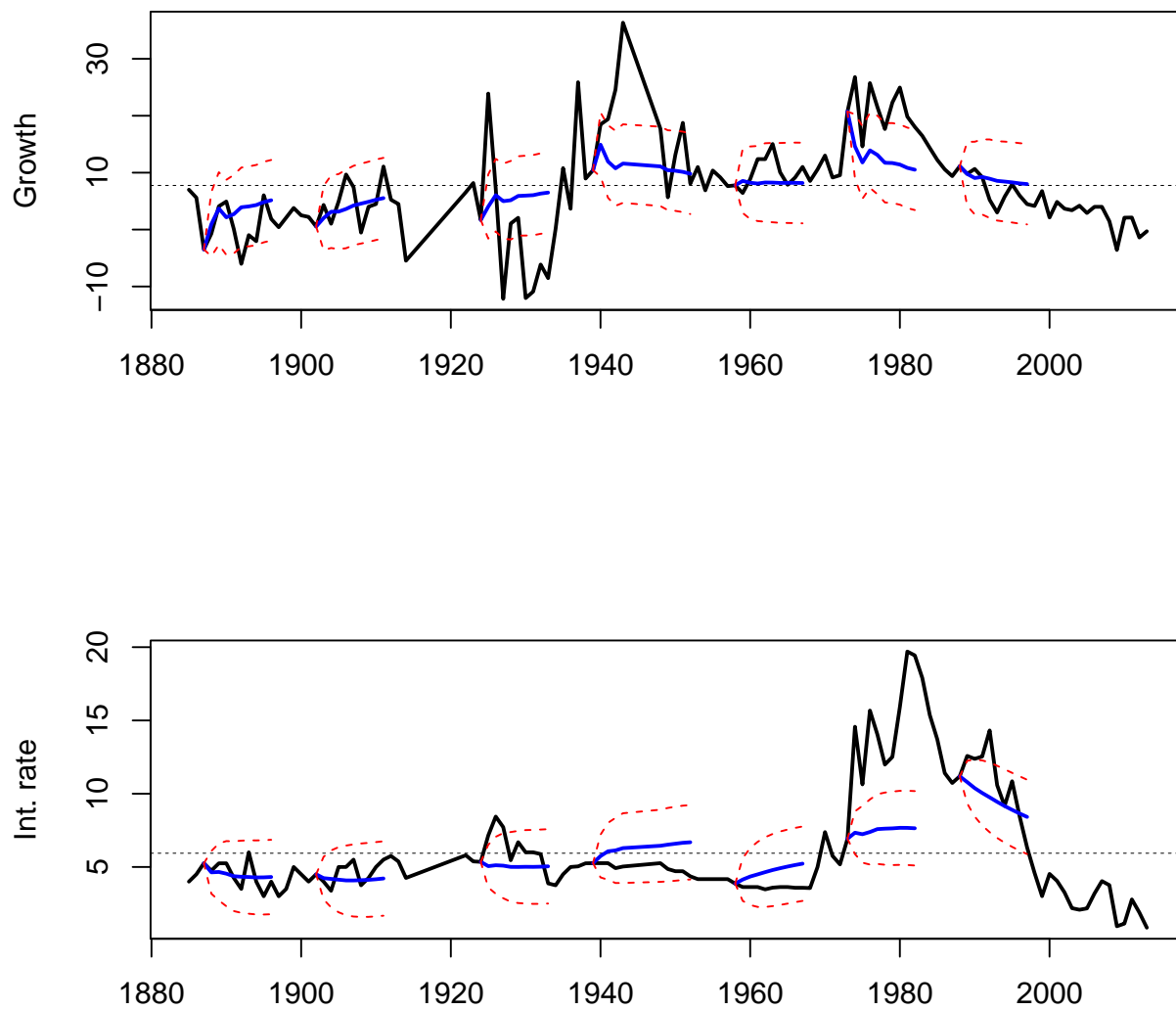


Figure 13: Conditional optimal lag MLE in-sample forecasts for Italy

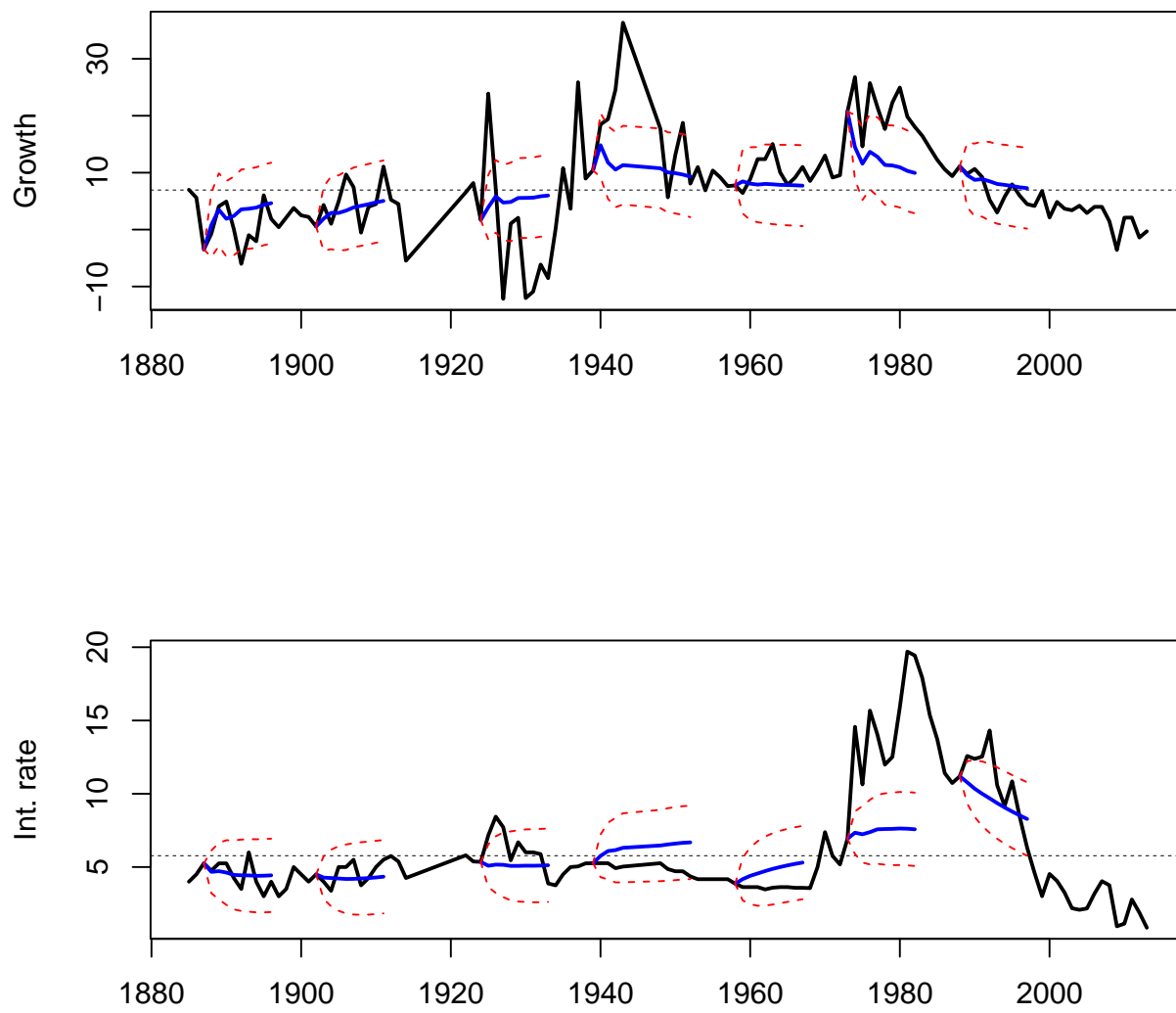


Figure 14: Unconditional optimal lag MLE in-sample forecasts for Italy

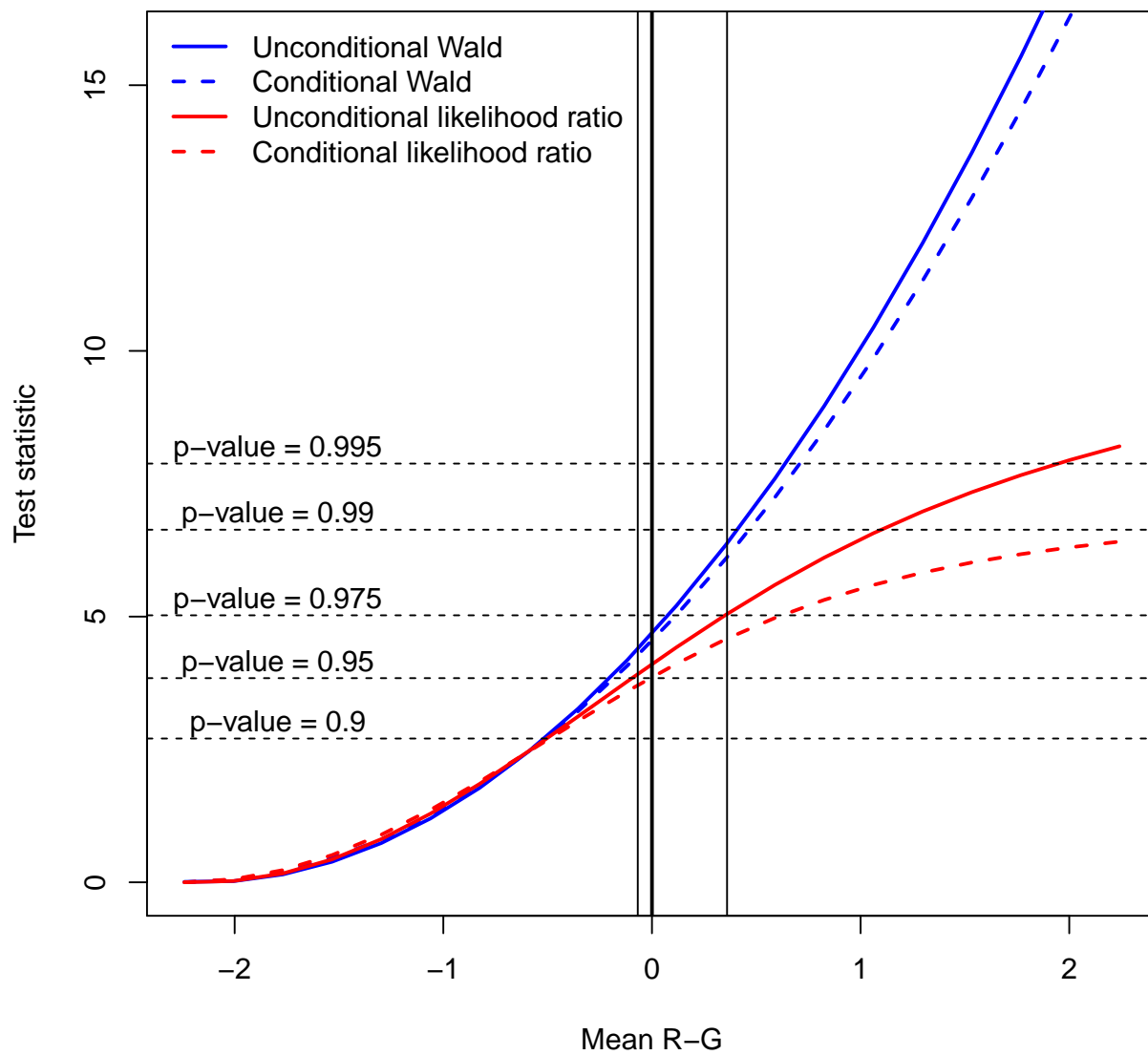


Figure 15: Optimal-lag hypothesis tests for USA



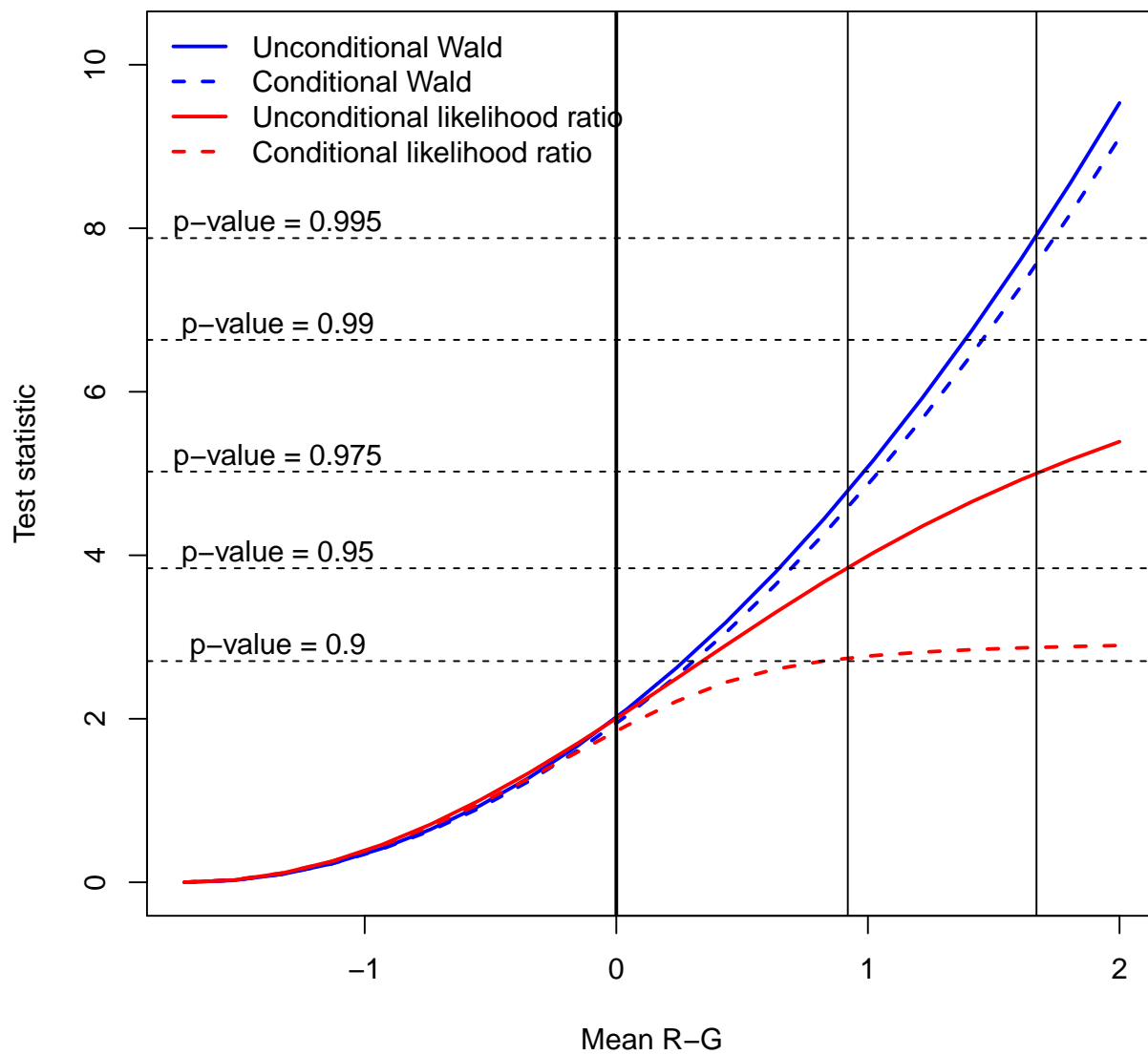


Figure 16: Optimal-lag hypothesis tests for France

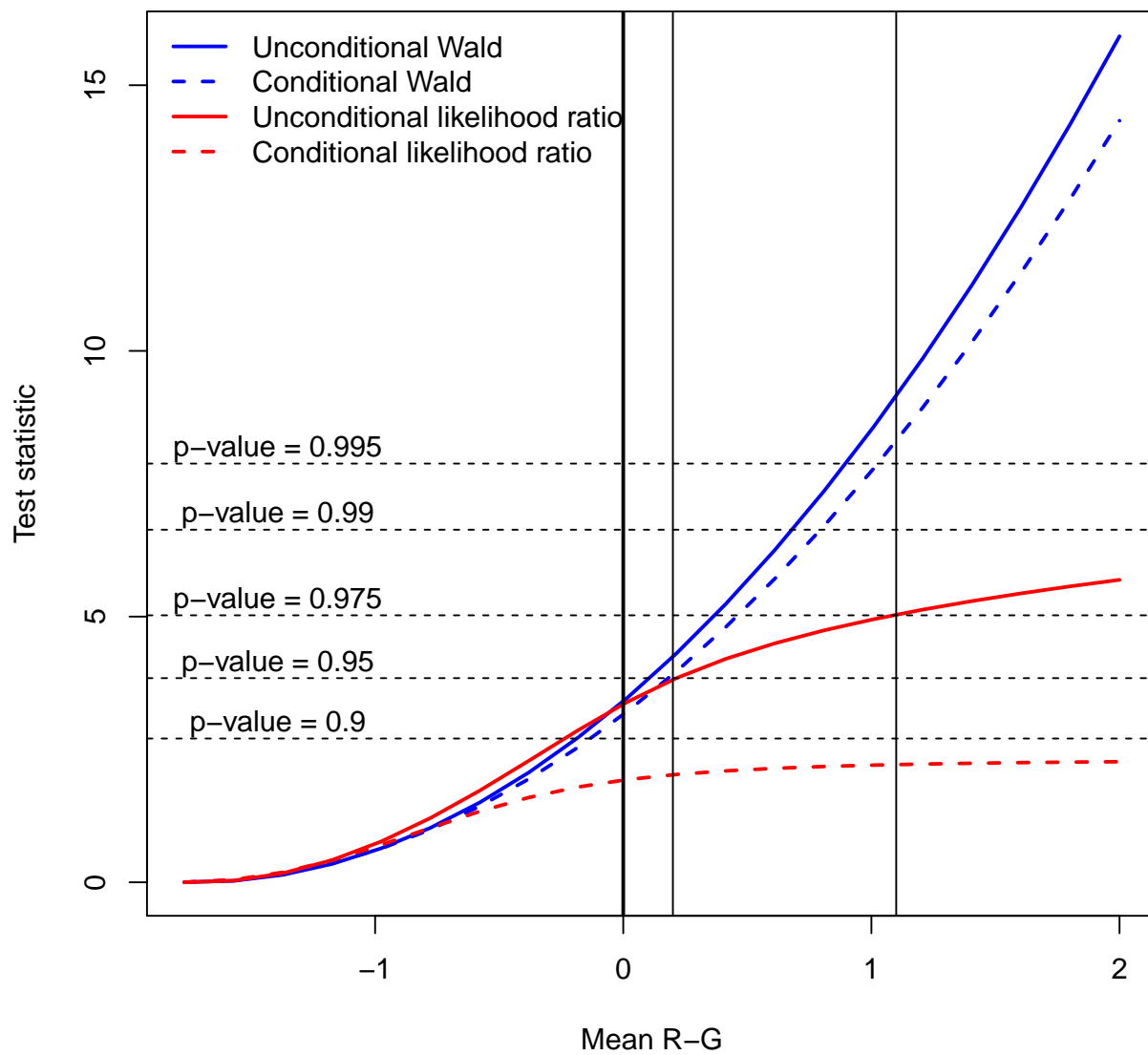


Figure 17: Optimal-lag hypothesis tests for UK

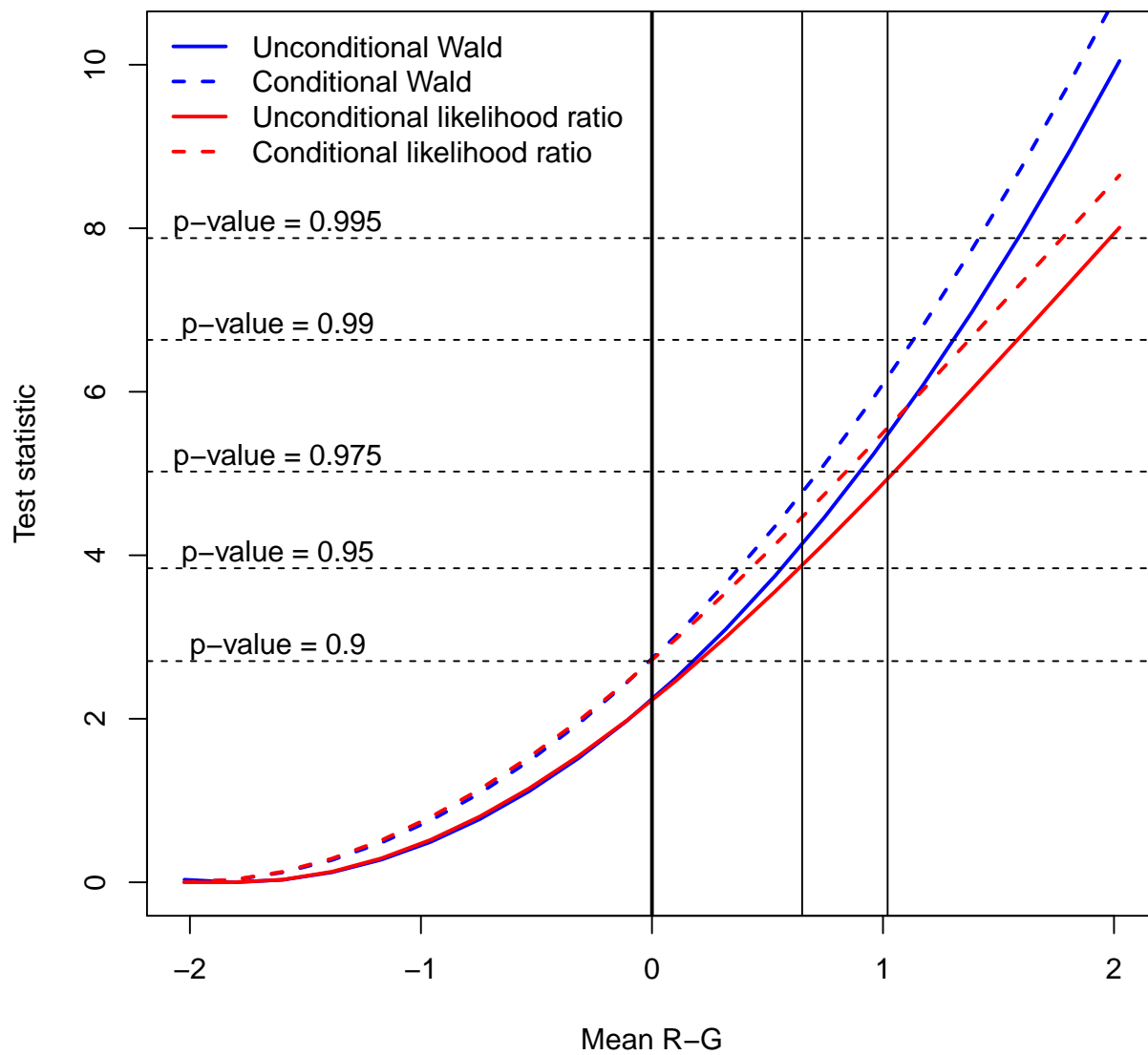


Figure 18: Optimal-lag hypothesis tests for Germany

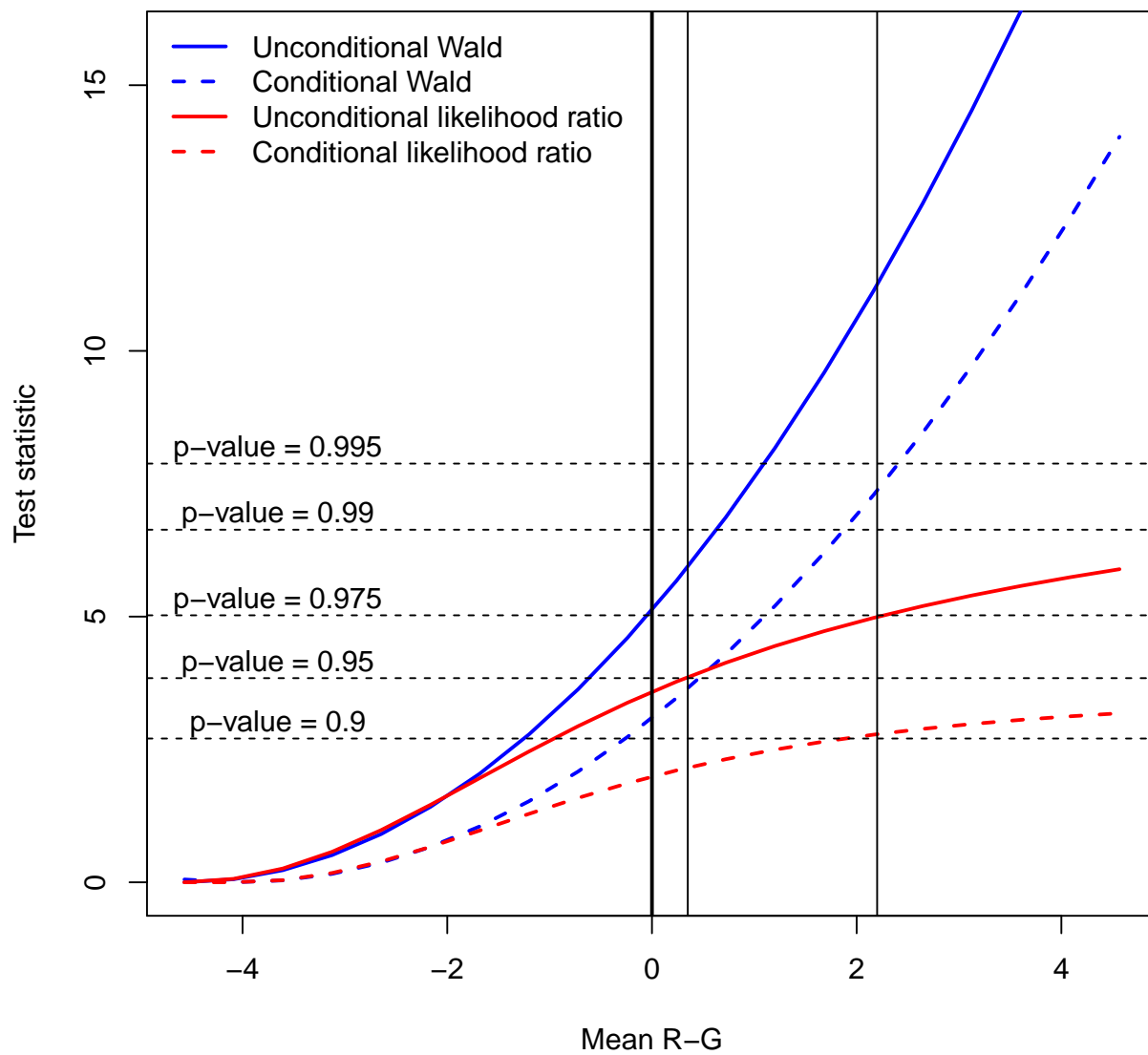


Figure 19: Optimal-lag hypothesis tests for Canada

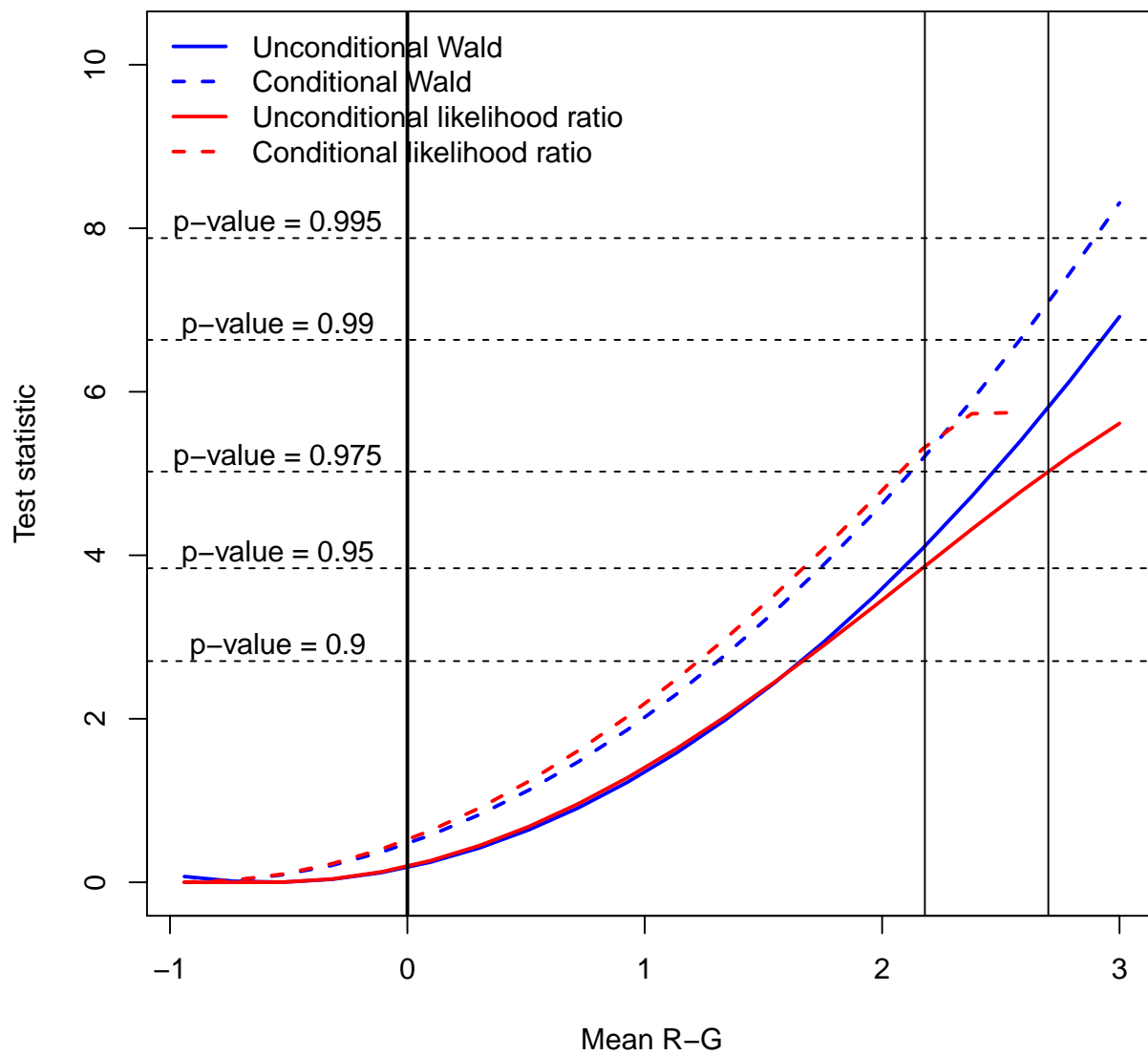


Figure 20: Optimal-lag hypothesis tests for Japan

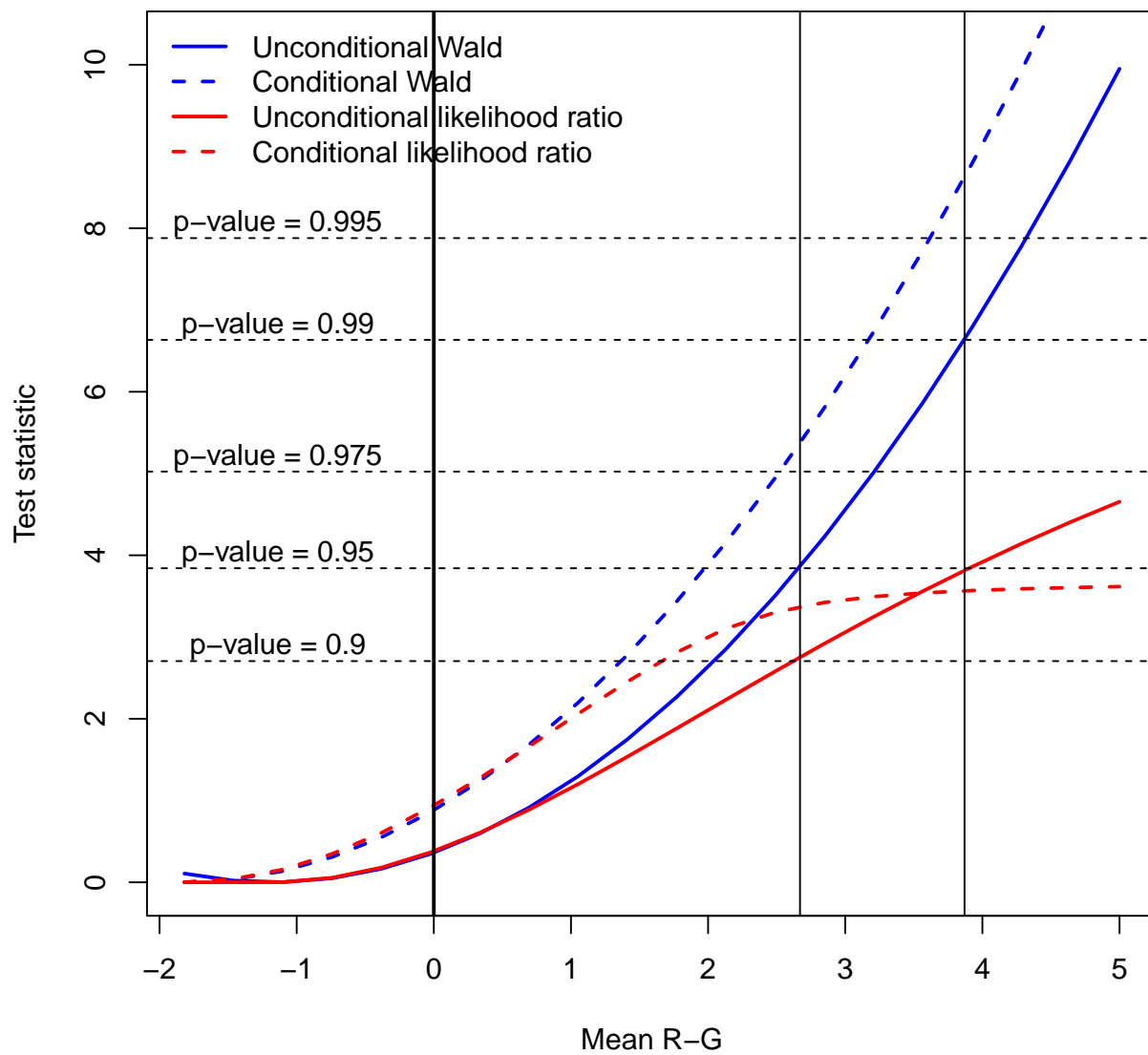


Figure 21: Optimal-lag hypothesis tests for Italy