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Software Reliability Prediction: A Multi-Modelling Approach

Volume II

Sarah Brocklehurst

Thesis Submitted for the Degree of Doctor of Philosophy in Computer Science

City University

Centre for Software Reliability
City University
London EC1V OHB

February 1995

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Appendix B Tables and Plots for Analysis of Software Failure Data

B.1 Data Set CISI1

20.	32.	14.	40.	40.	43.	42.	22.	33.	23.
6.	8.	9.	5.	40.	69.	14.	73.	14.	31.
50.	28.	63.	20.	1.	39.	13.	10.	8.	38.
4.	11.	9.	149.	19.	3.	18.	26.	38.	53.
2.	11.	1.	4.	16.	3.	5.	1.	39.	1.
1.	29.	12.	28.	39.	5.	19.	12.	30.	1.
15.	8.	4.	17.	1.	12.	2.	1.	7.	19.
10.	1.	2.	2.	1.	13.	66.	95.	37.	17.
6.	83.	15.	59.	33.	31.	21.	14.	11.	13.
9.	79.	2.	9.	47.	54.	49.	2.	10.	9.
440.	101.	24.	71.	57.	1.	12.	19.	7.	2.
97.	2.	55.	825.	108.	44.	8.	11.	7.	82.
2.	2.	2.	77.	92.	98.	119.	133.	154.	38.
163.	119.	316.	76.	25.	32.	39.	51.	198.	291.
279.	159.	150.	125.	69.	356.	109.	26.	30.	29.
397.	81.	71.	805.	50.	161.	76.	309.	147.	176.
135.	76.	150.	86.	97.	144.	465.	187.		

Table B.1-1. Data set *CISI1*; 168 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	C	F	A	D	A	F	A	F	A	F	A
GO	F	C	F	A	D	A	F	A	F	A	F	A
MO	A	B	A	E	C	A	D	A	E	A	D	A
DU	A	F	A	F	C	A	C	A	D	A	B	B
LM	F	B	F	A	D	A	E	A	F	A	F	A
LNHPP	F	A	F	A	D	A	E	A	F	A	F	A
LV	A	F	D	F	D	A	D	A	E	A	F	C
KL	A	F	E	F	D	A	E	A	F	A	F	D
CM1	A	F	A	A	A	A	A	A	A	A	A	A
CM2	D	A	D	E	C	A	D	A	F	A	F	A
CM3	F	A	F	B	B	A	D	A	F	A	F	A
OTY20	A	A	A	A	A	A	A	A	B	A	A	A
OTY50	A	A	A	B	A	A	A	A	A	A	A	B
OTL	A	B	A	B	A	A	A	A	B	A	C	A
OTL20	A	B	A	A	B	A	A	A	A	A	A	A
OTL50	A	B	B	A	B	A	A	A	B	A	C	A

Table B.1-2.1. *u*- and *y*-plot significance levels for data set *CISI1* for predictions of $T_{66}, T_{67}, \ldots$.

M1		***M2***		***M5***		***M10***		***M20***		***M30***		***M40***		***M50***	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
A	A	C	B	B	A	D	A	A	A	C	A	C	A	B	A

Table B.1-2.2. *u*- and *y*-plot significance levels for data set *CISI1* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

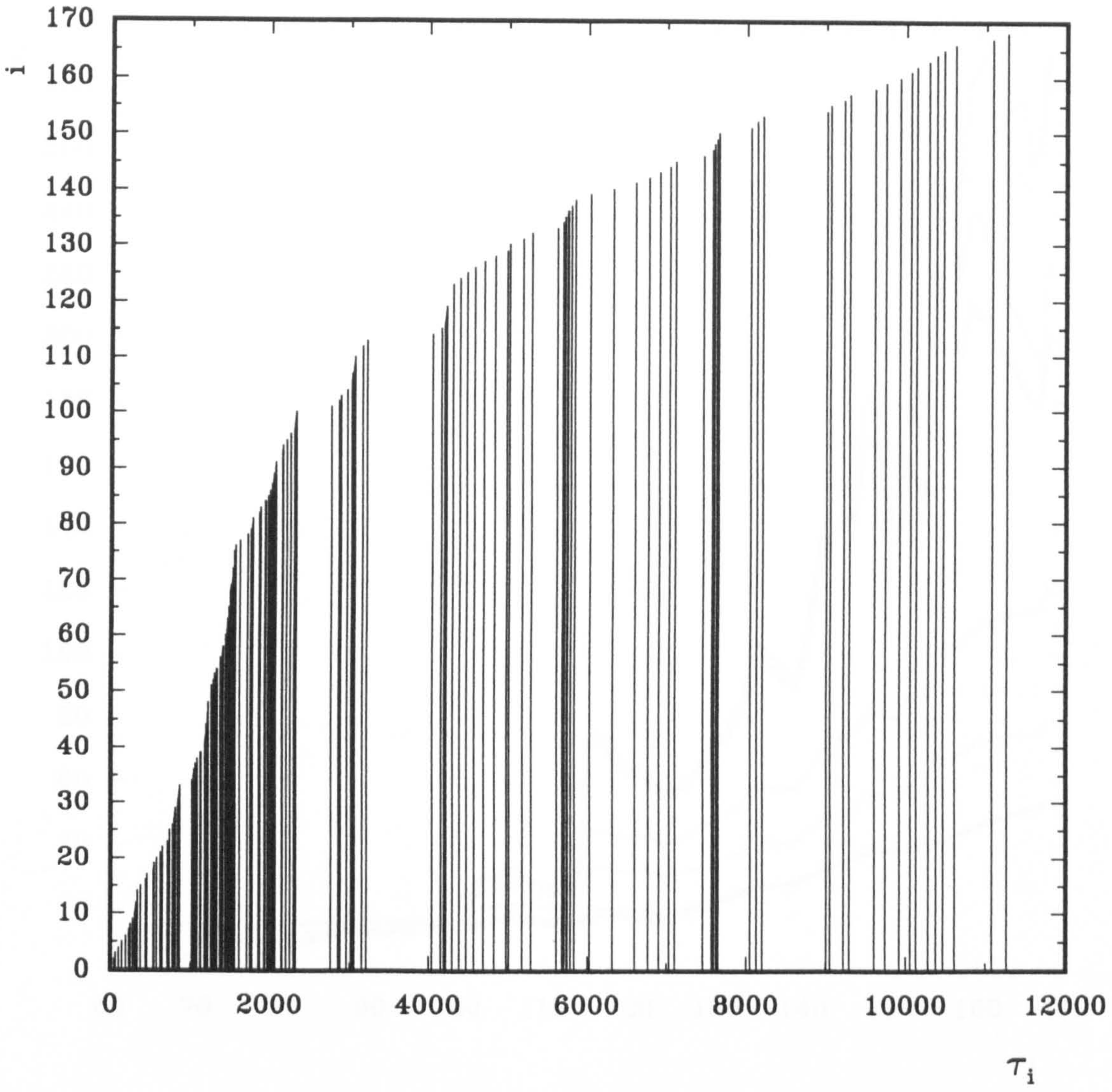


Figure B.1-3. Cumulative number of failures plotted against total elapsed time for data set *CISI1*.

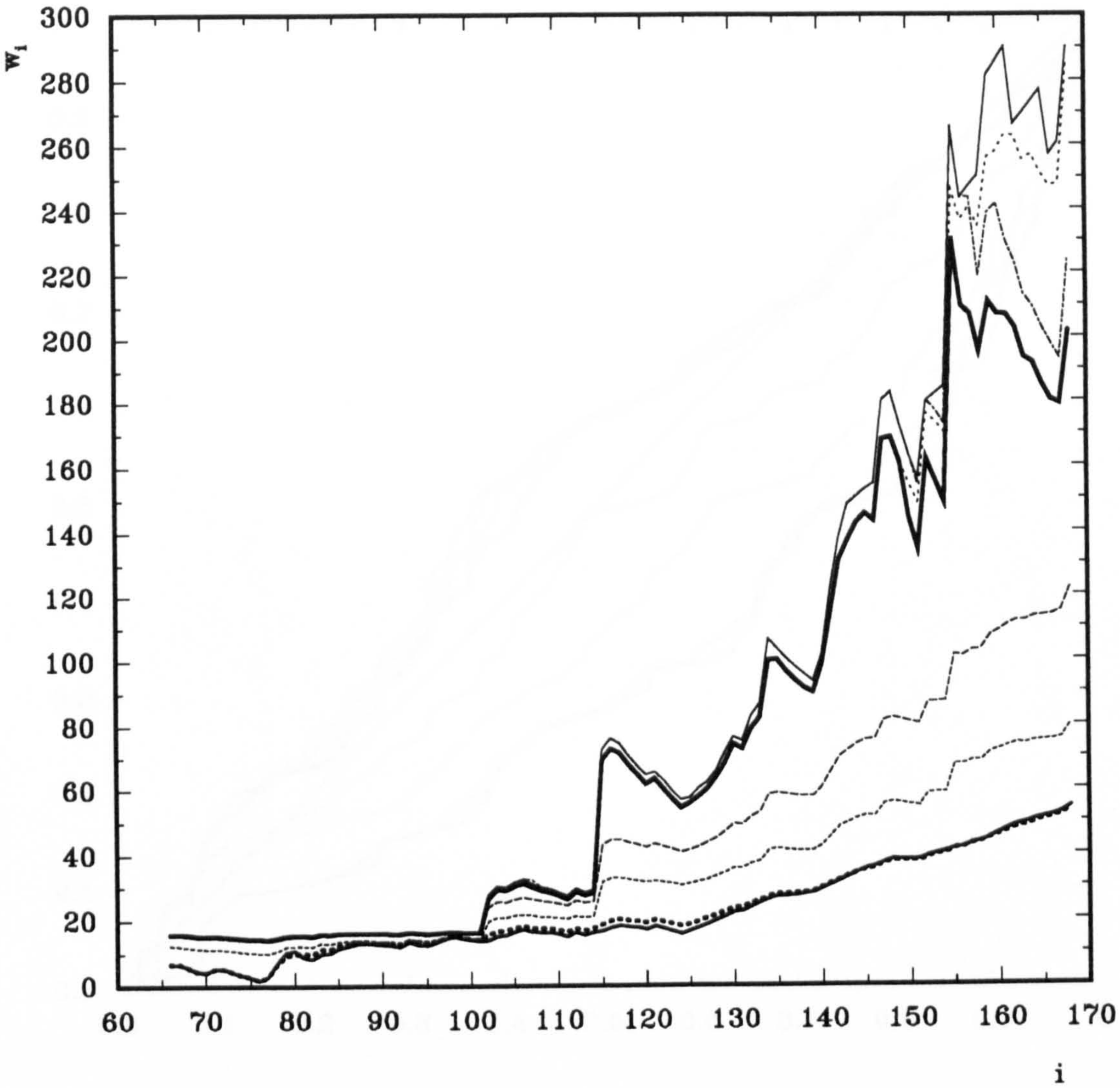
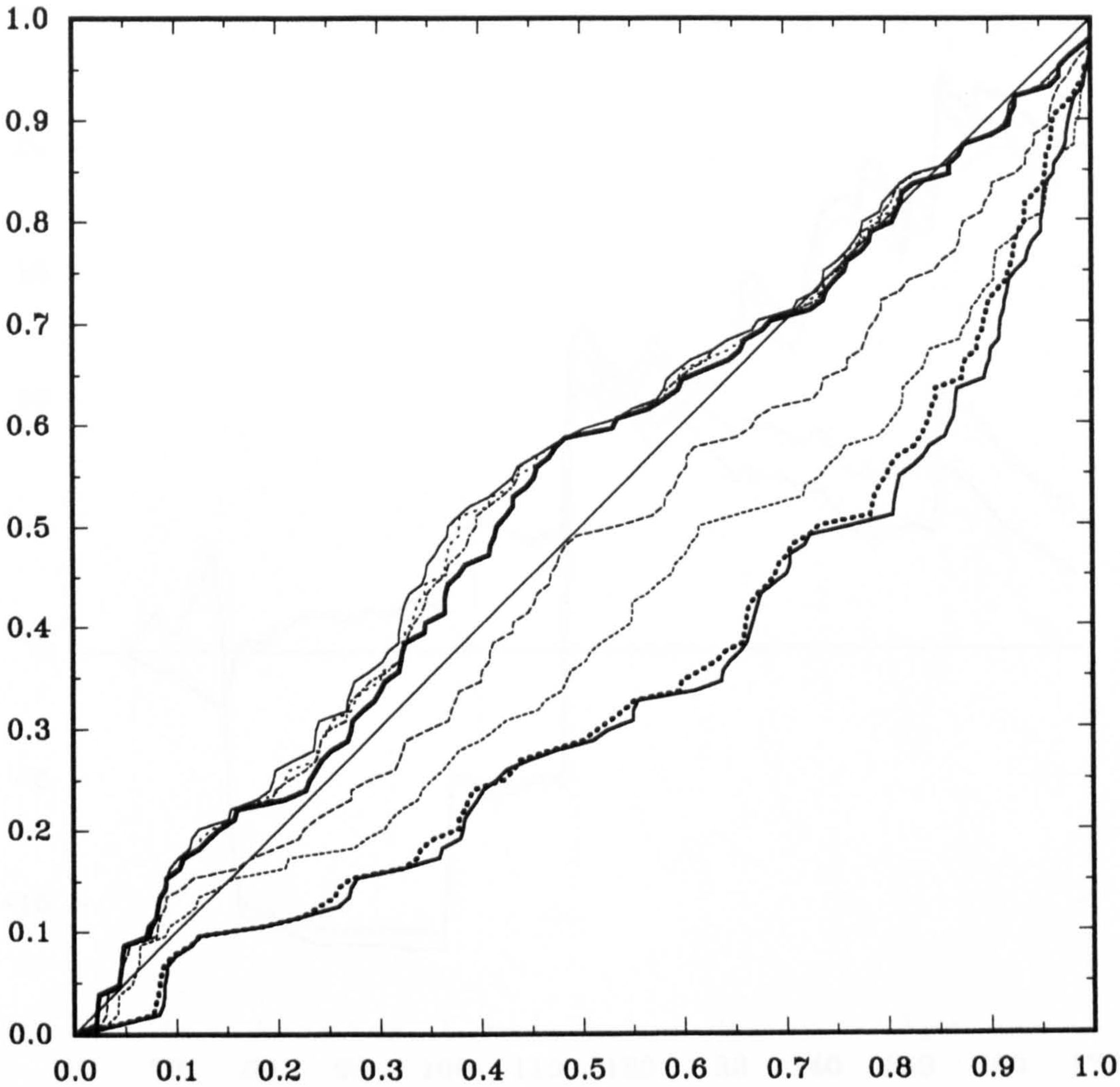


Figure B.1-4. Median predictions from the raw parametric predictors plotted against failure number for data set *CISI1*.



JM
GO
MO
DU
LM
LNHPP
LV
KL

Figure B.1-5. *u*-plots for the raw parametric predictors for data set *CISI1*.

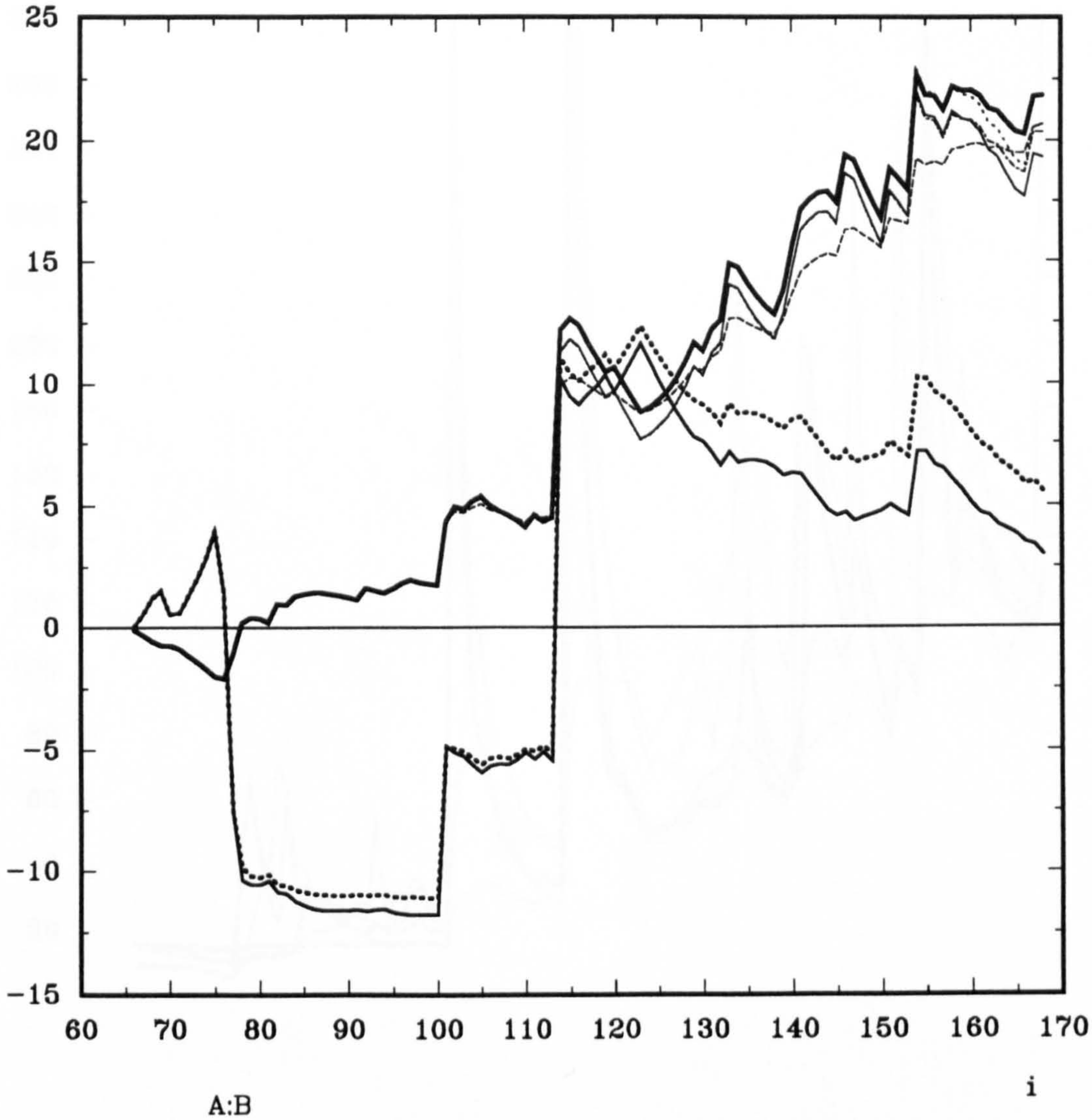


Figure B.1-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *CISI1*.

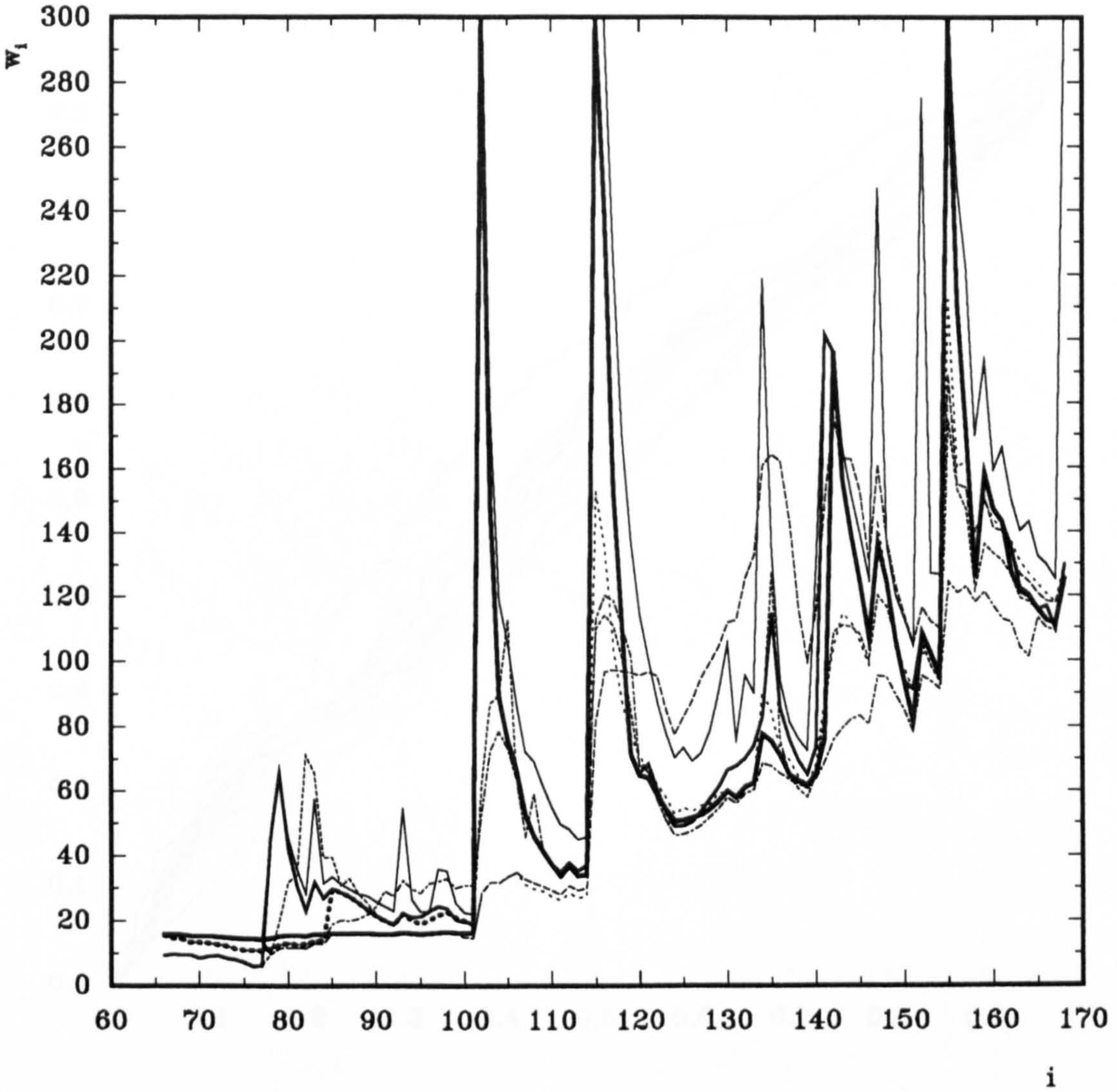
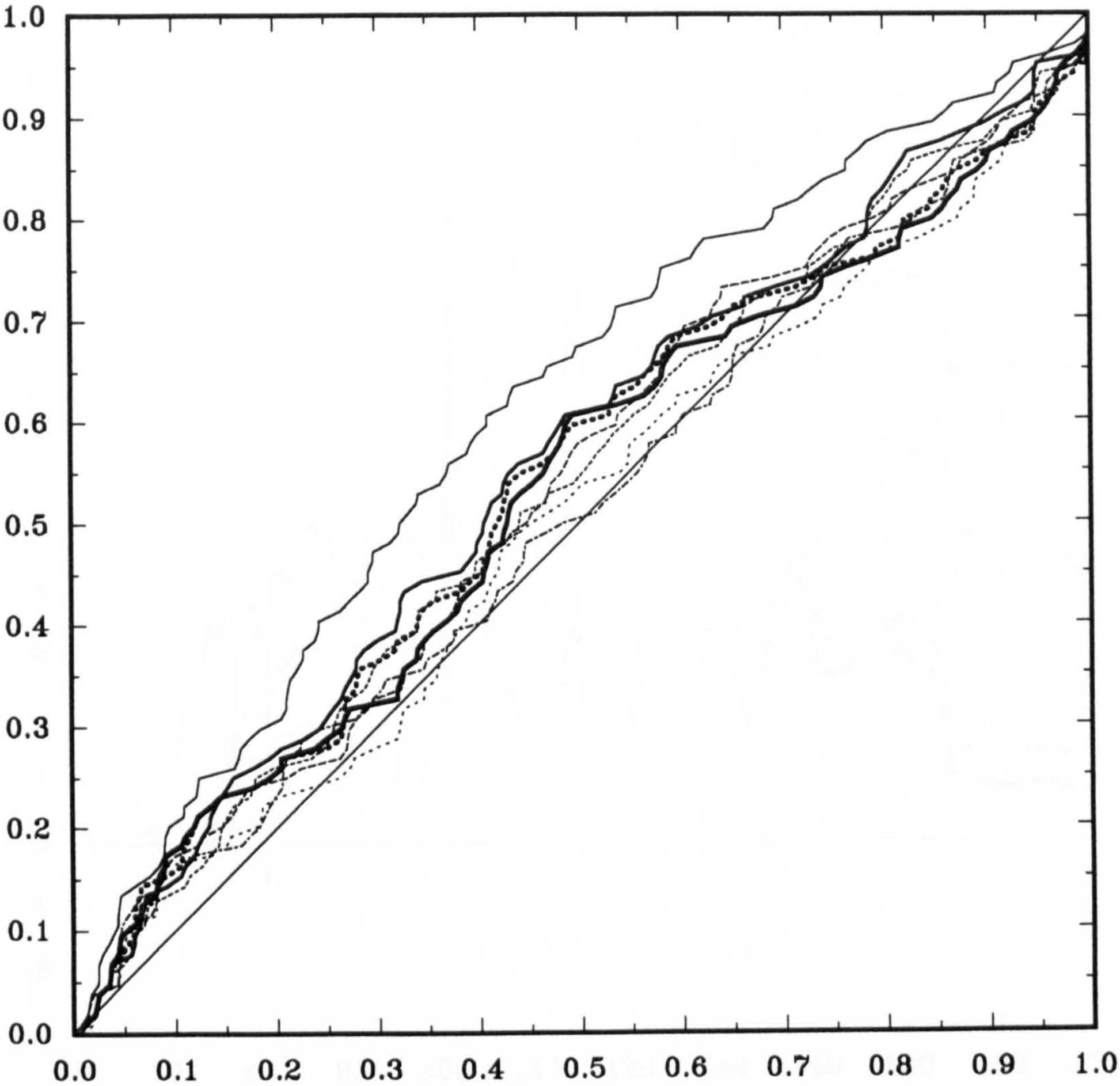


Figure B.1-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *CISI1*.



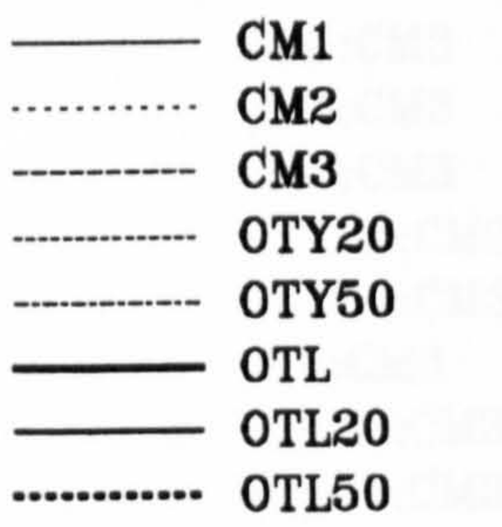


Figure B.1-8. *u*-plots for the raw non-parametric predictors for data set *CISI1*.

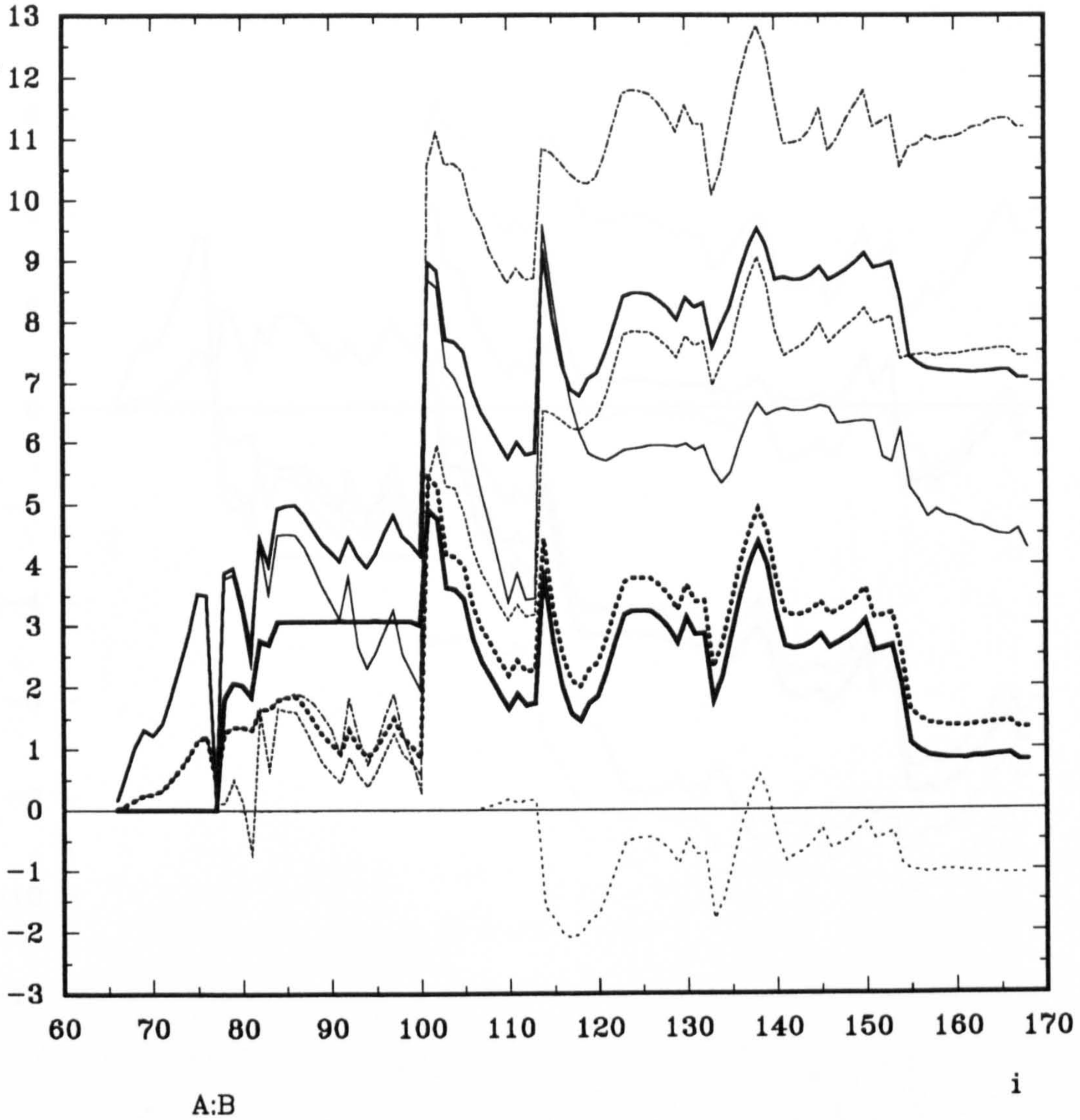


Figure B.1-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *CISI1*.

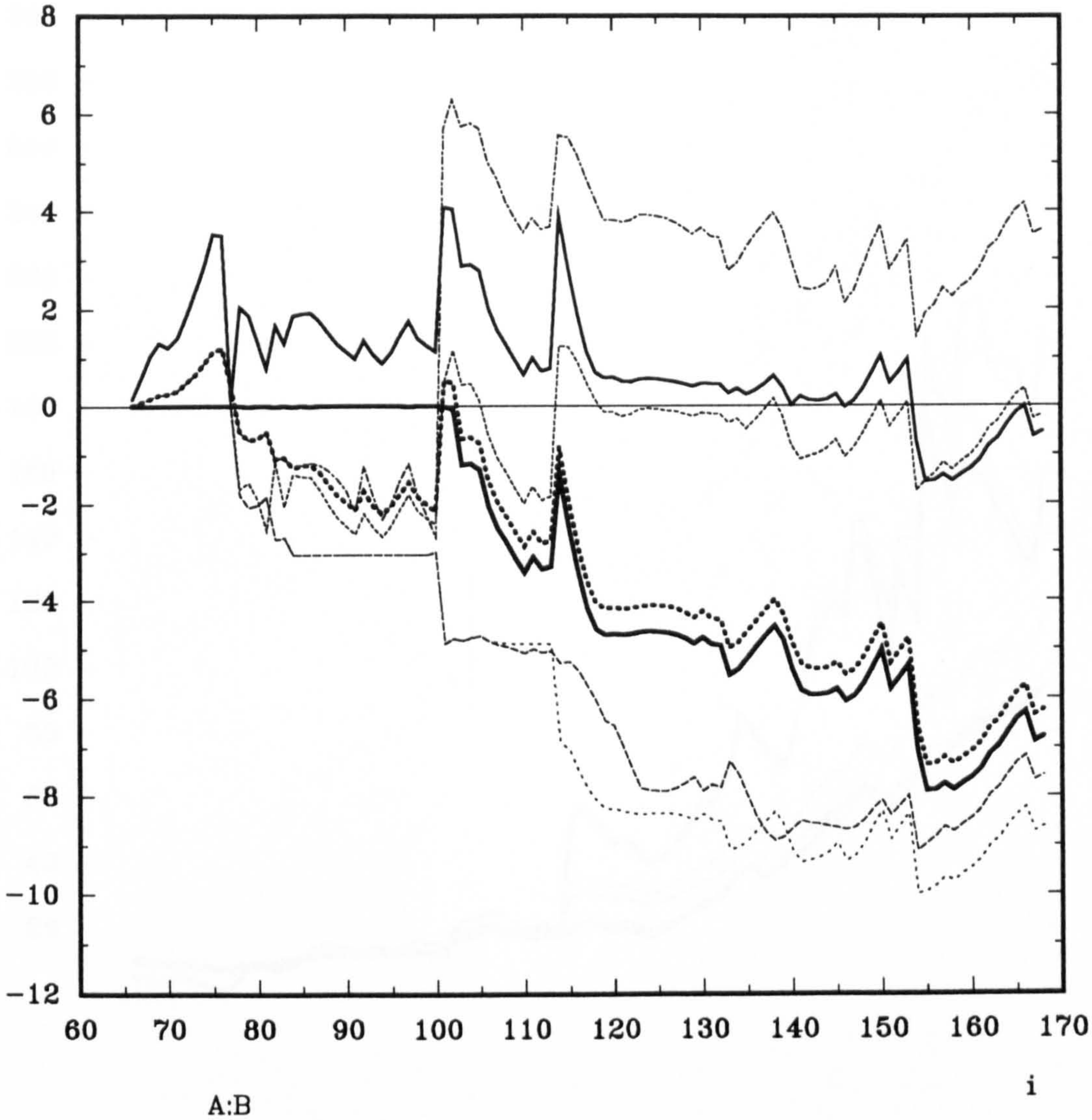


Figure B.1-10. *log(PLR)*-plots for the raw non-parametric predictors versus *LNHPP* for data set *CISI1*.

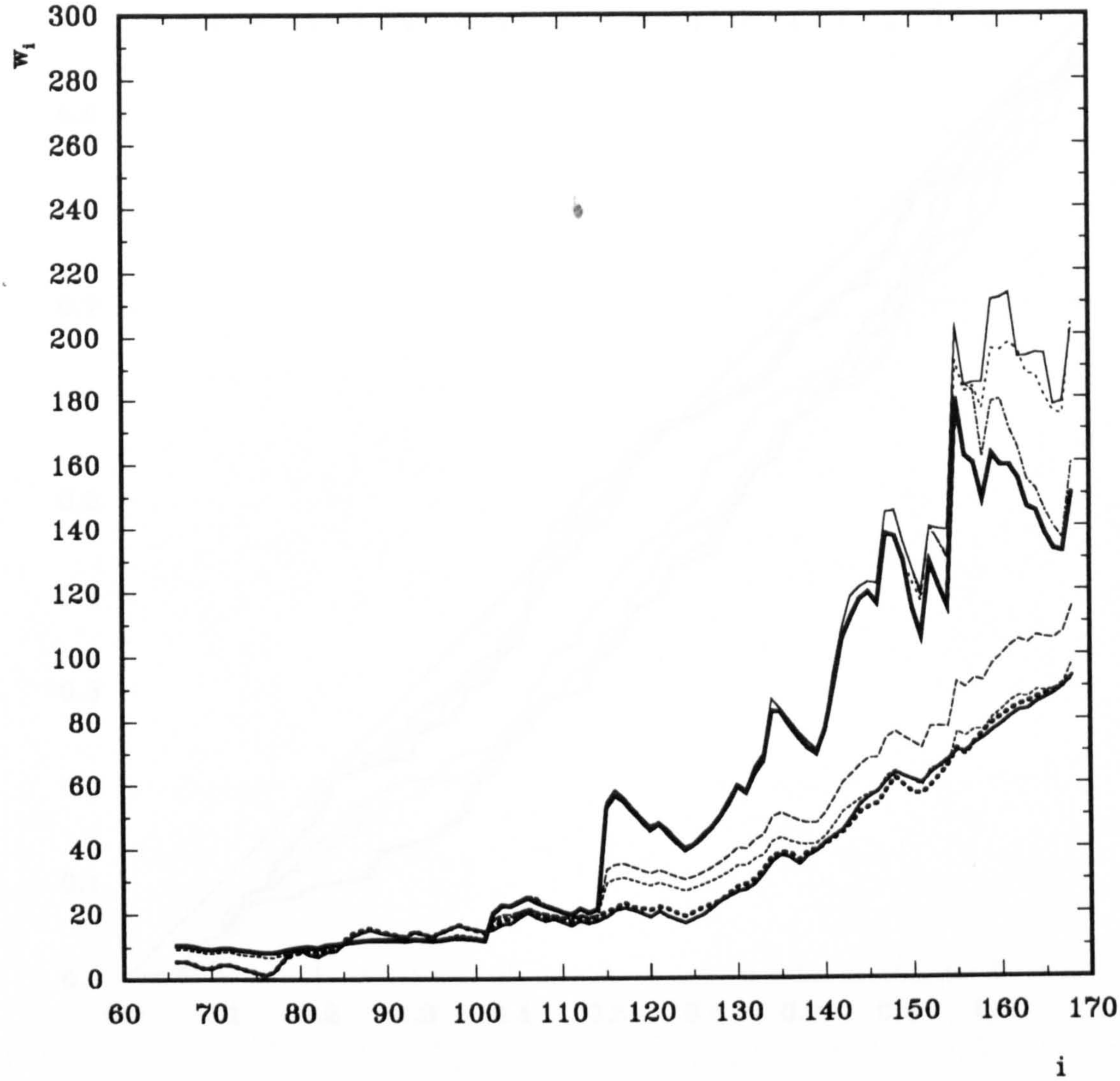


Figure B.1-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *CISI1*.

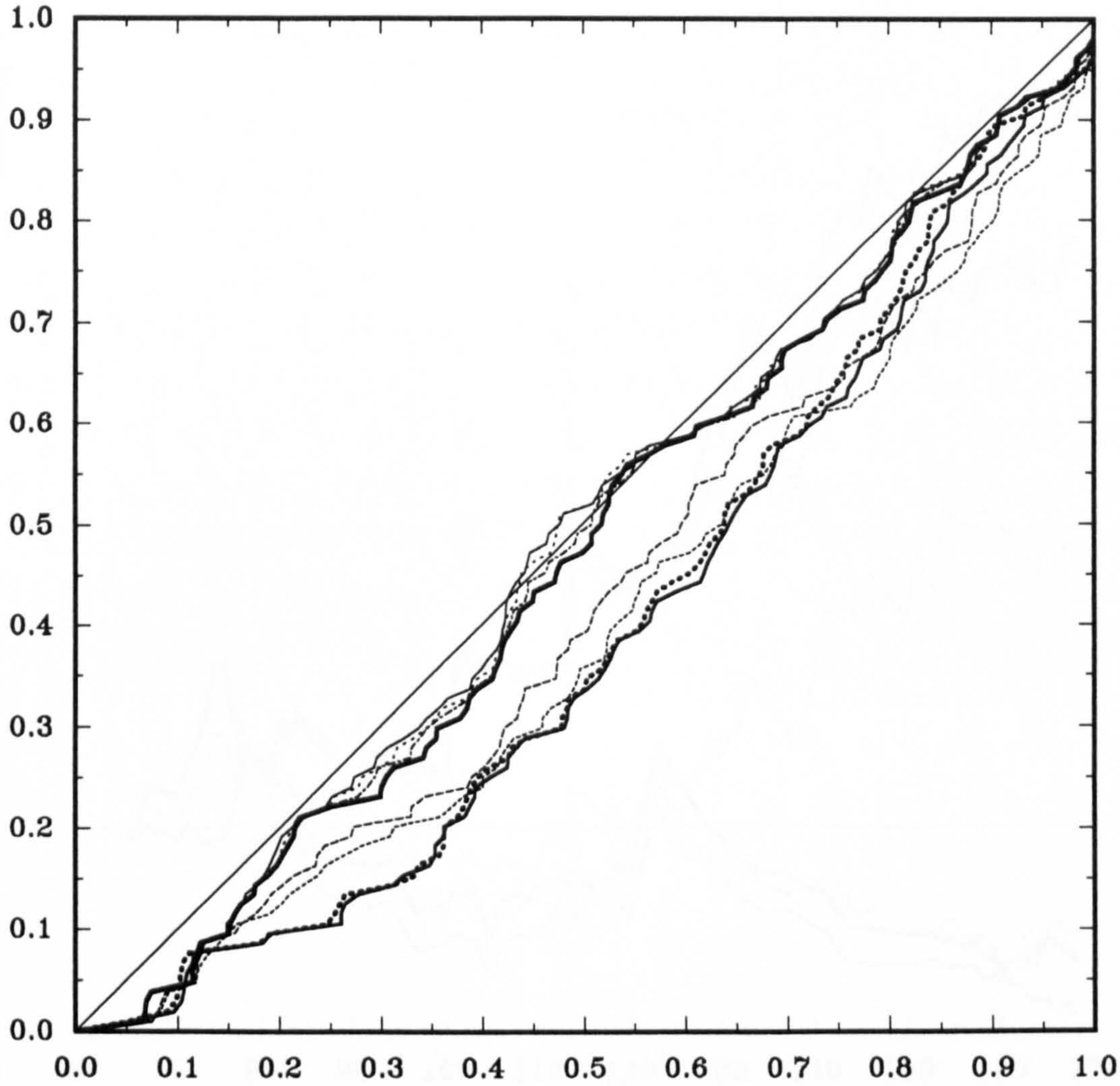


Figure B.1-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *CISI1*.

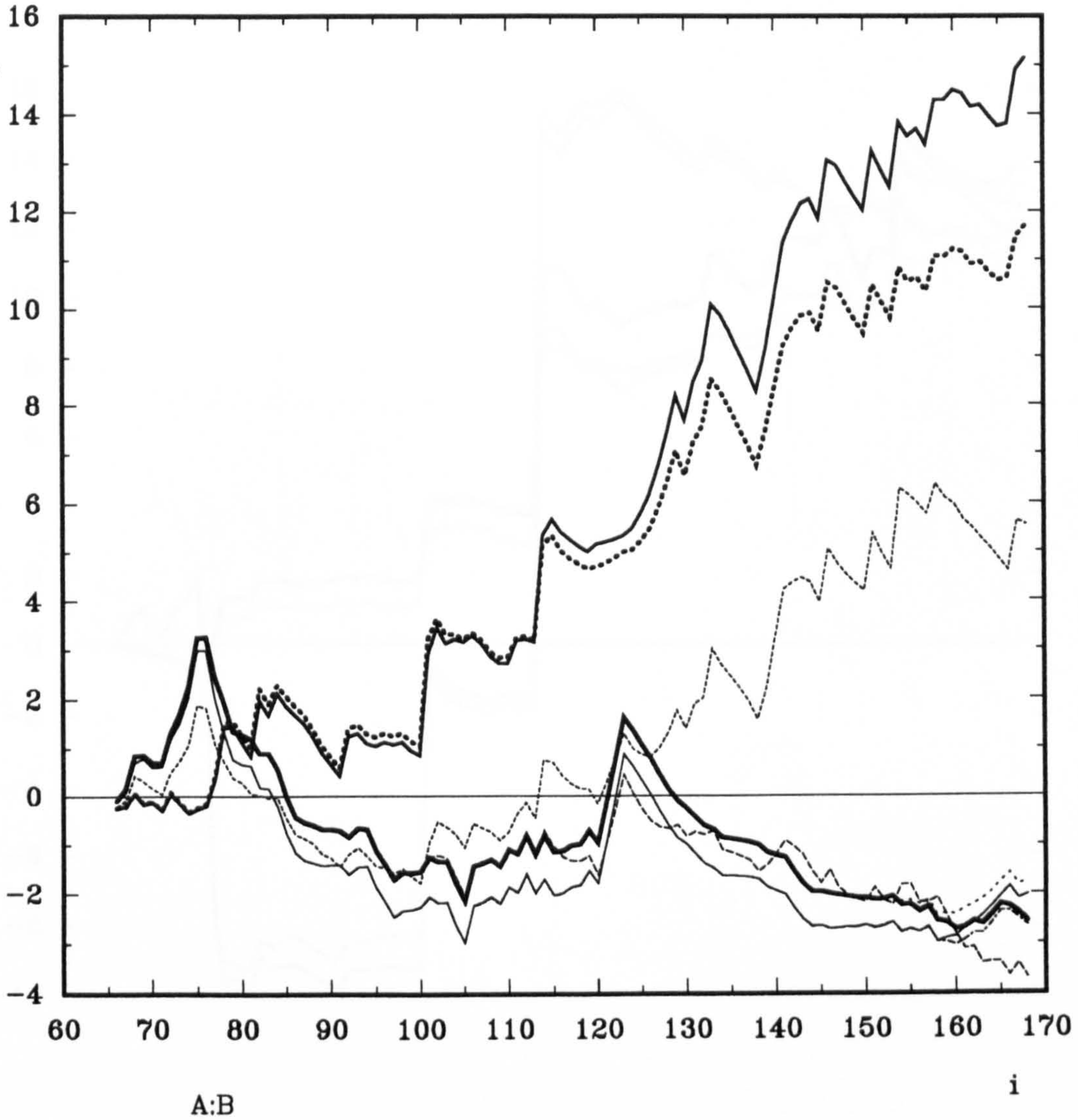


Figure B.1-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *CISI1*.

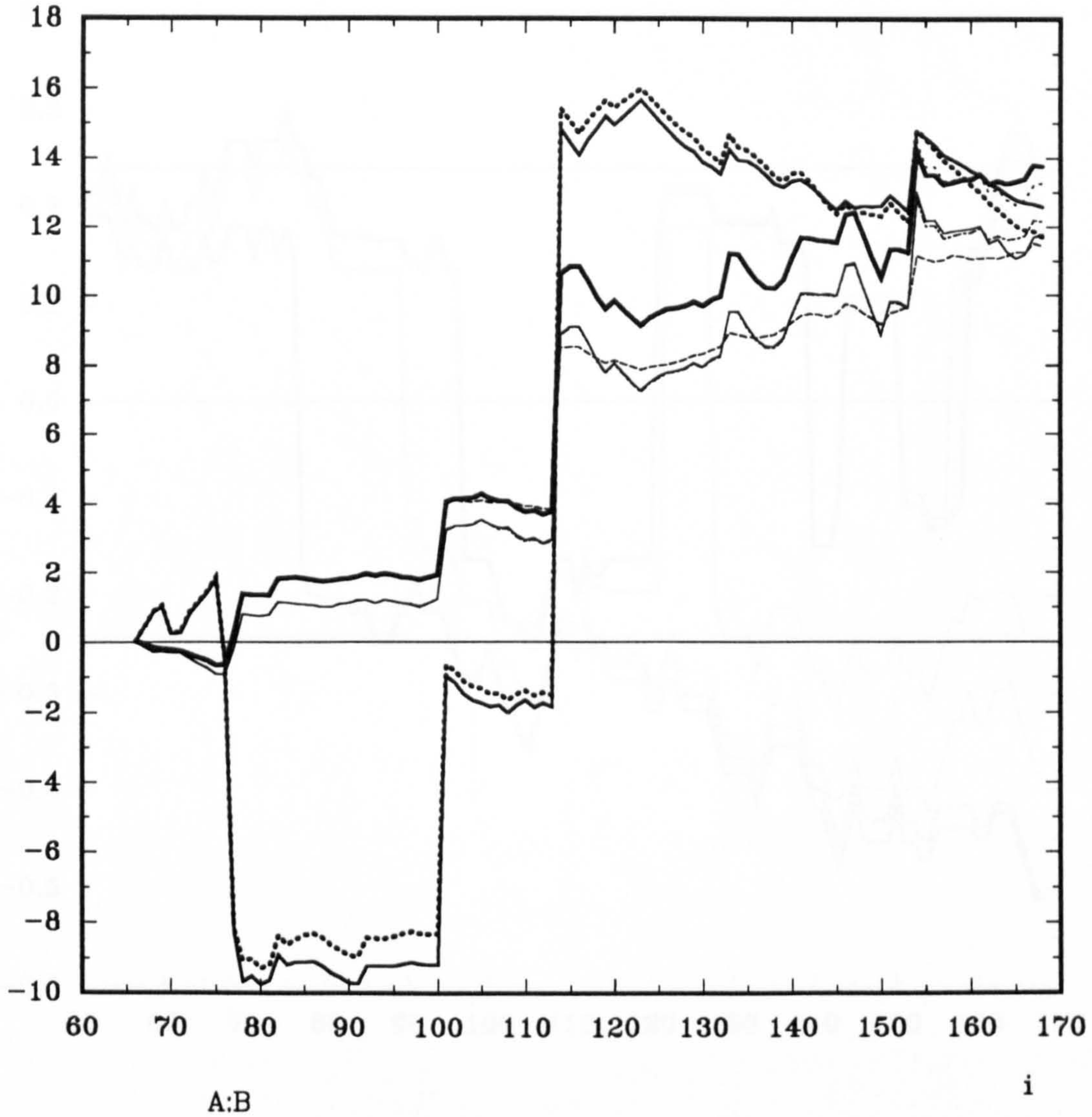


Figure B.1-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *CISI1*.

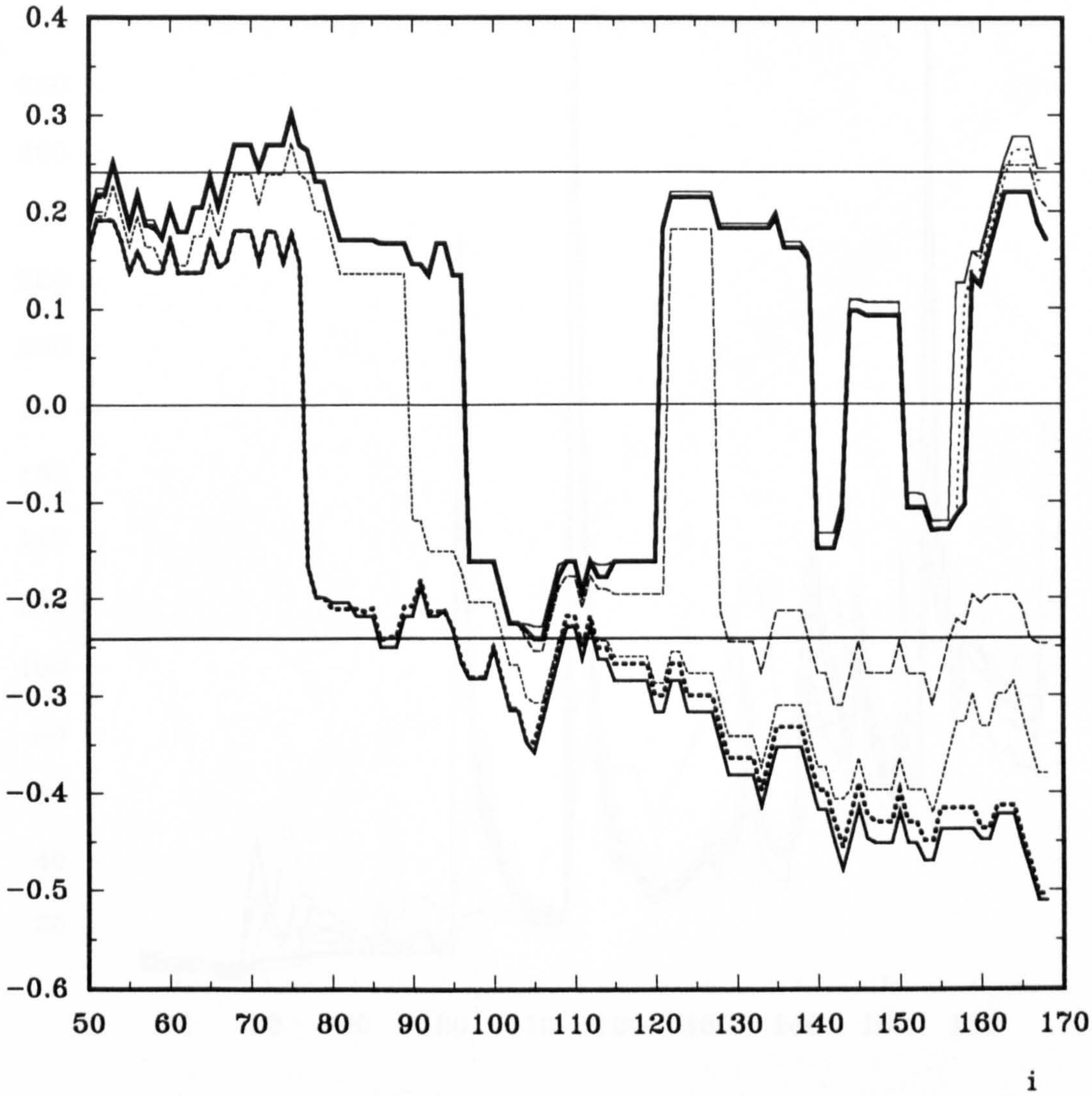


Figure B.1-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *CISI1*.

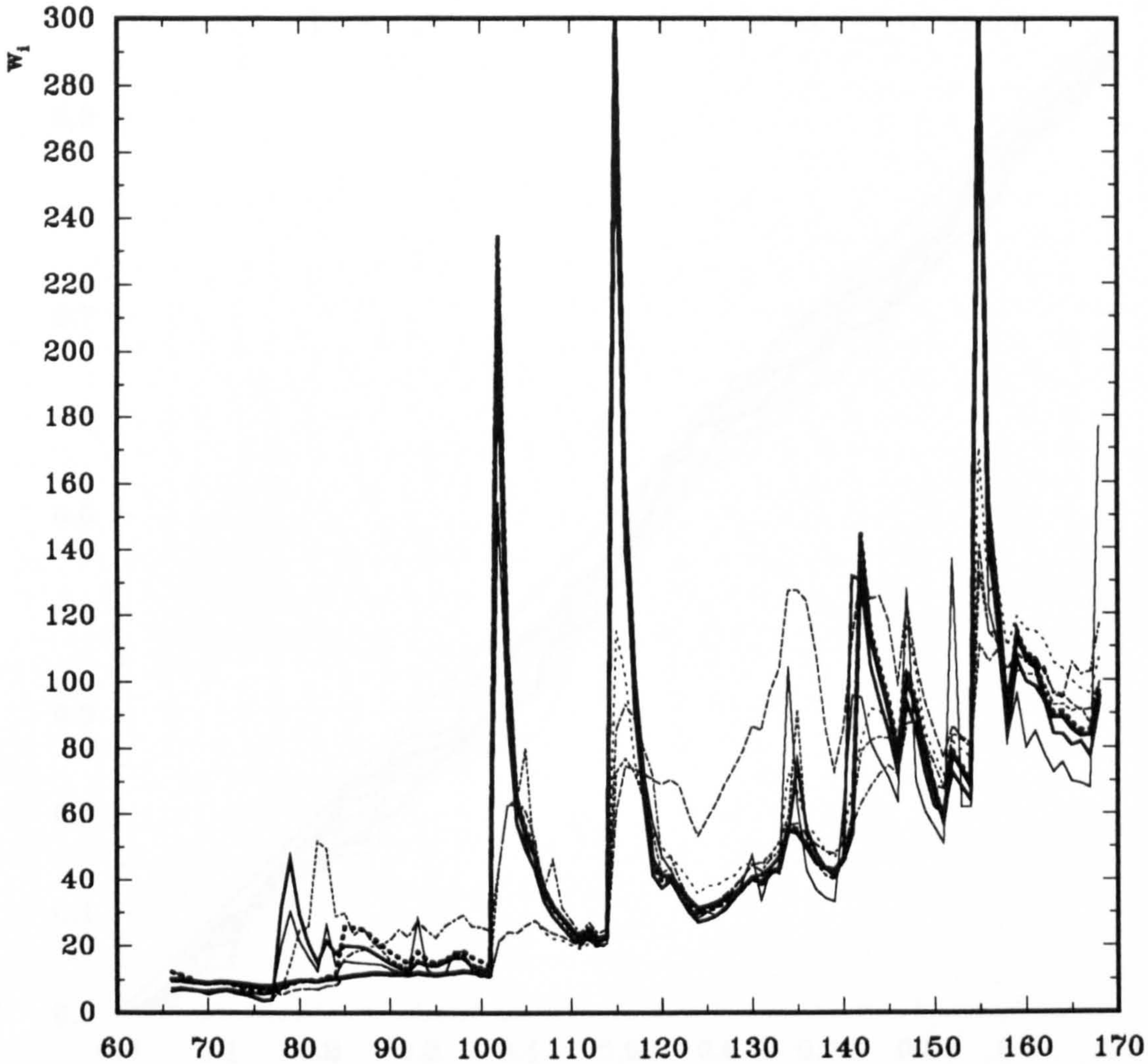
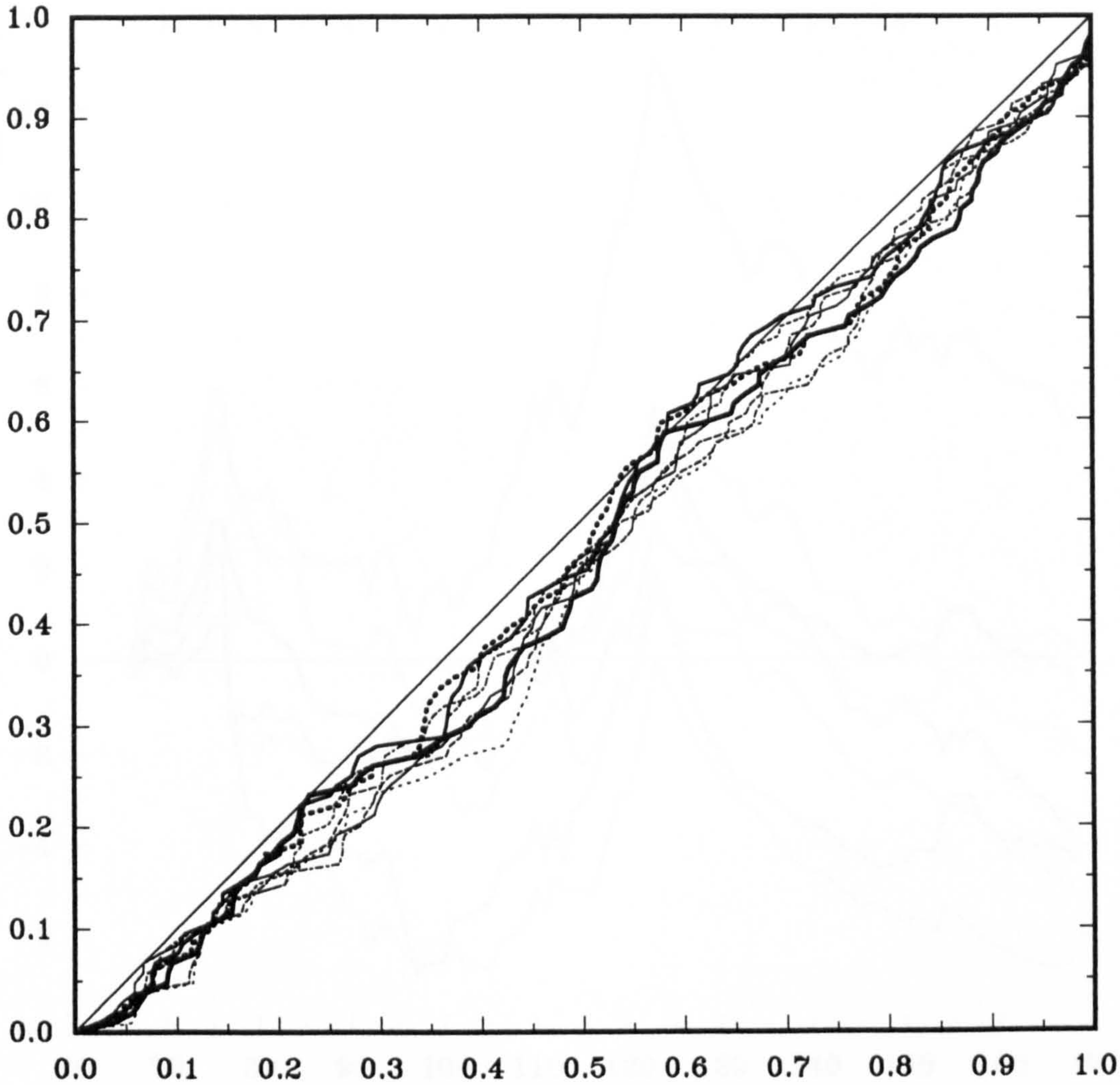


Figure B.1-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *CISI1*.



CM1S
CM2S
CM3S
OTY20S
OTY50S
OTLS
OTL20S
OTL50S

Figure B.1-17. *u*-plots for the recalibrated (no window) non-parametric predictors for data set *CISI1*.

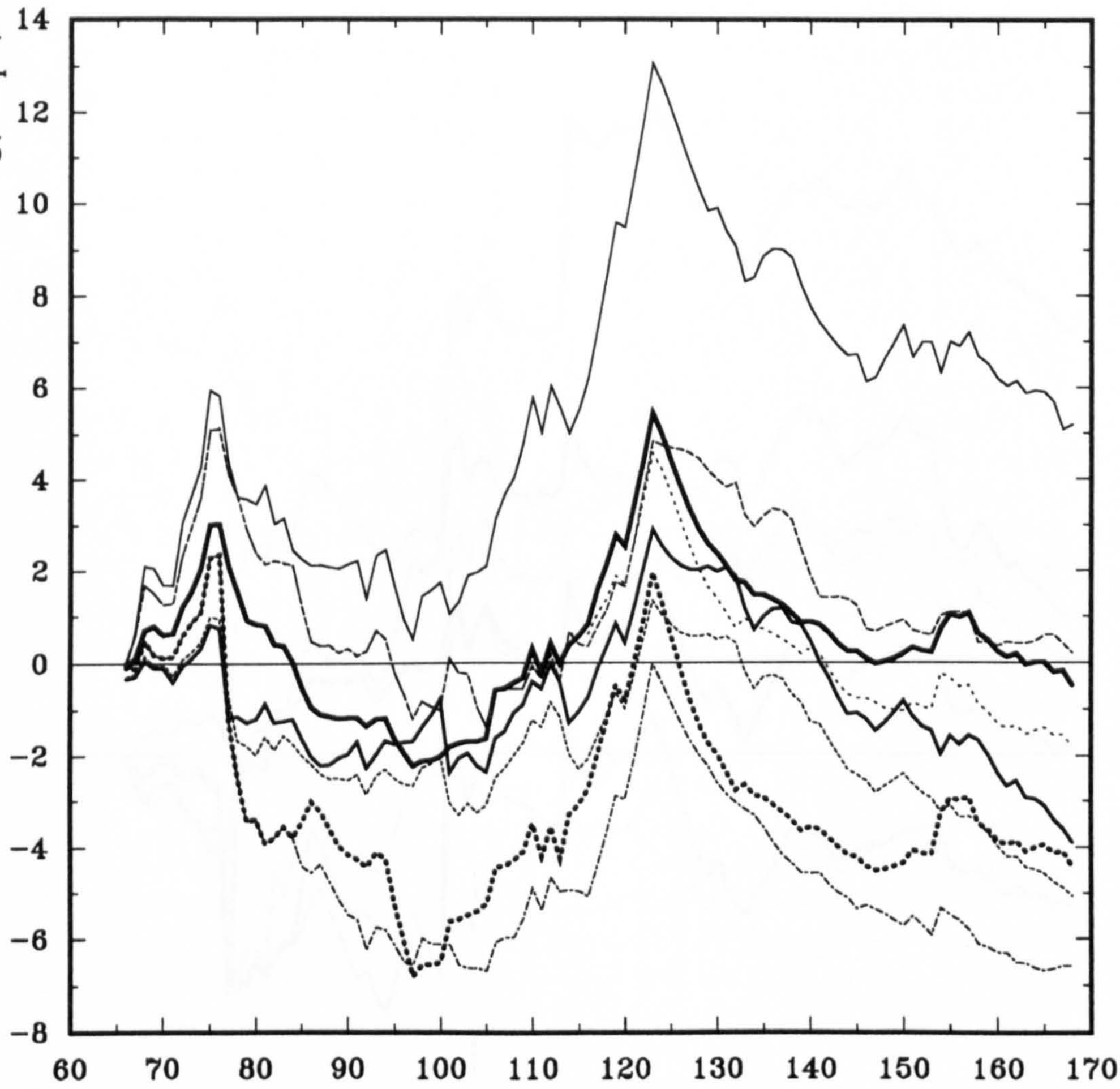


Figure B.1-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *CISI1*.

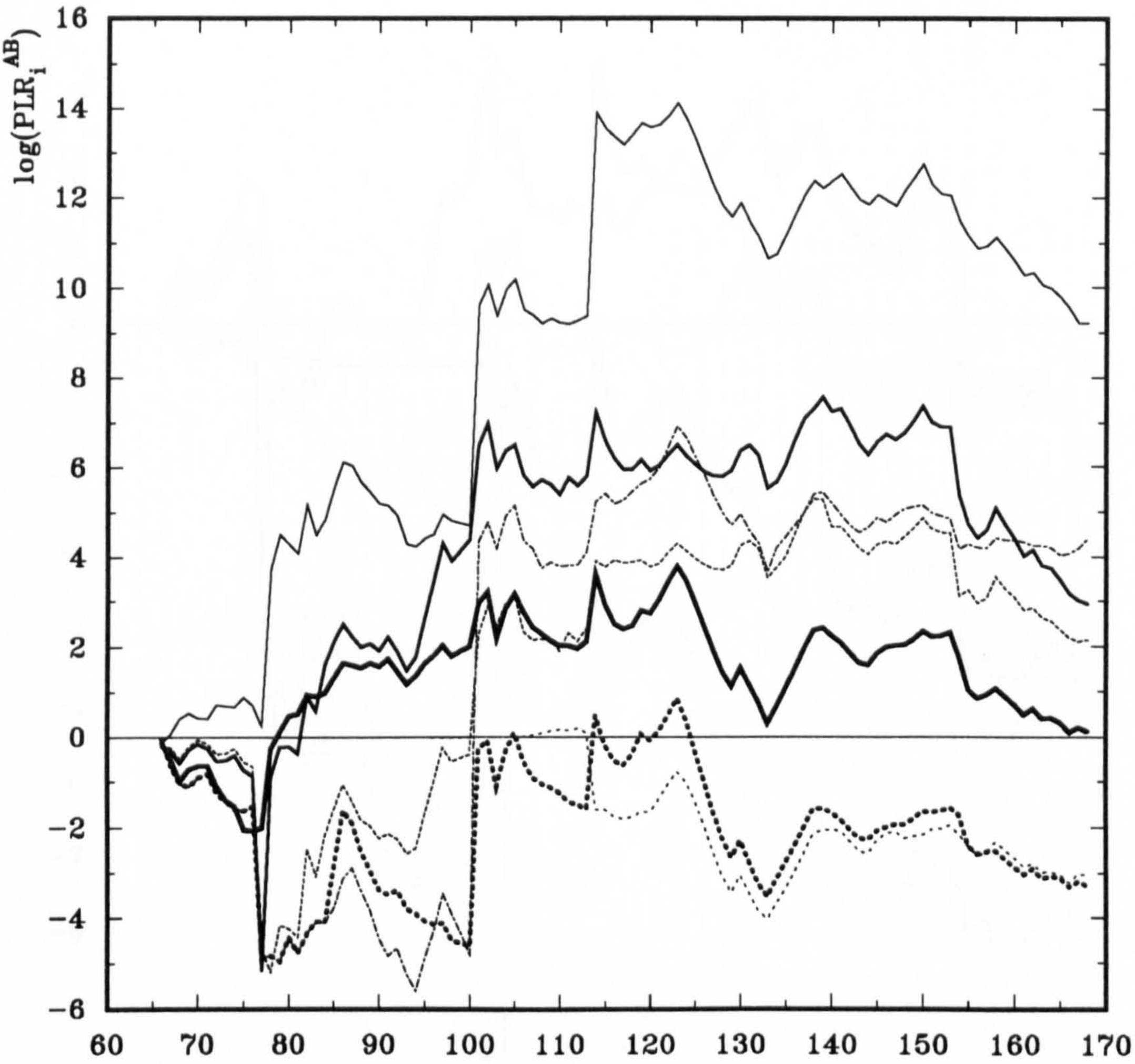


Figure B.1-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *CISI1*.

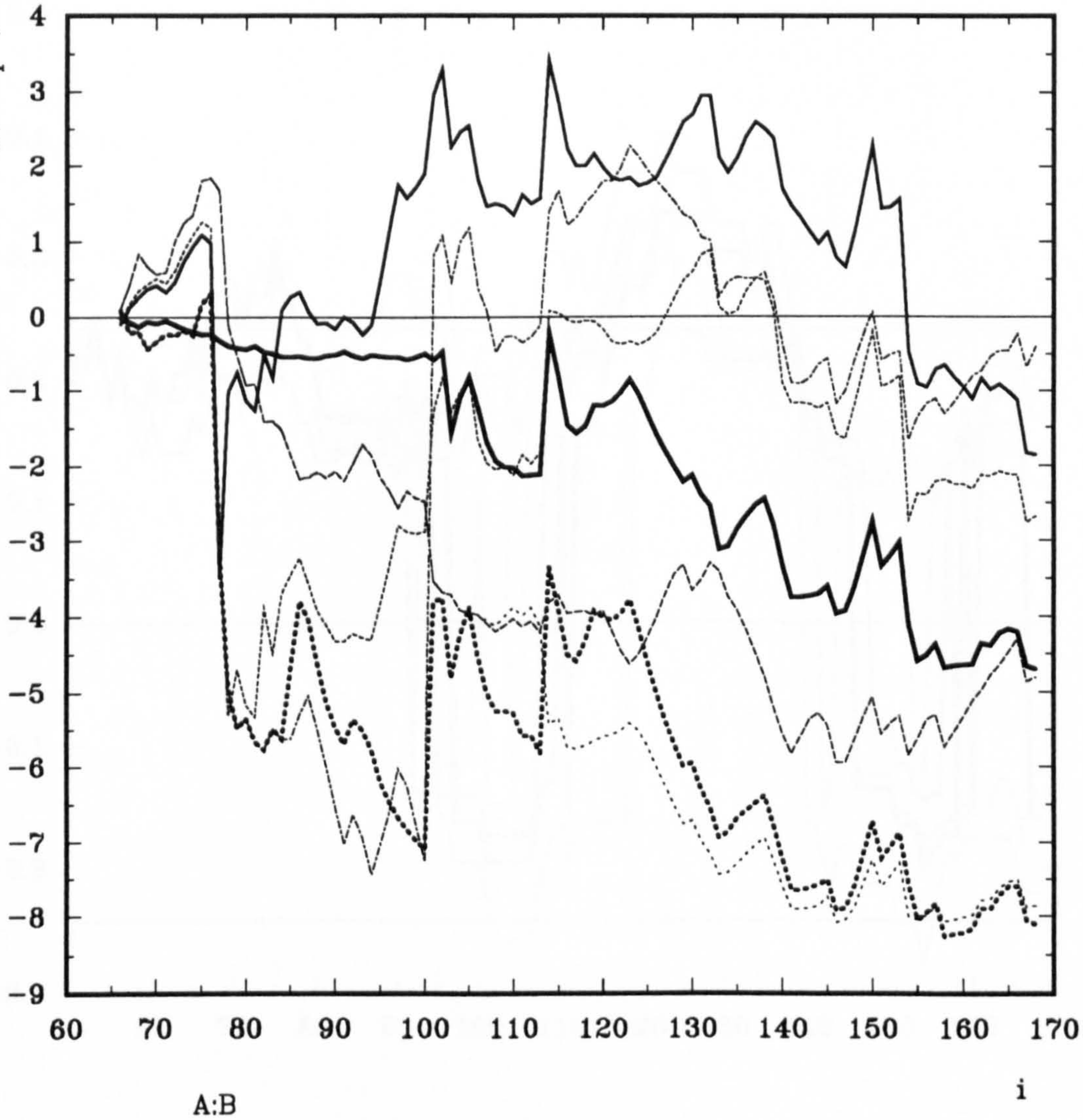


Figure B.1-20. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *LNHPPS* for data set *CISI1*.

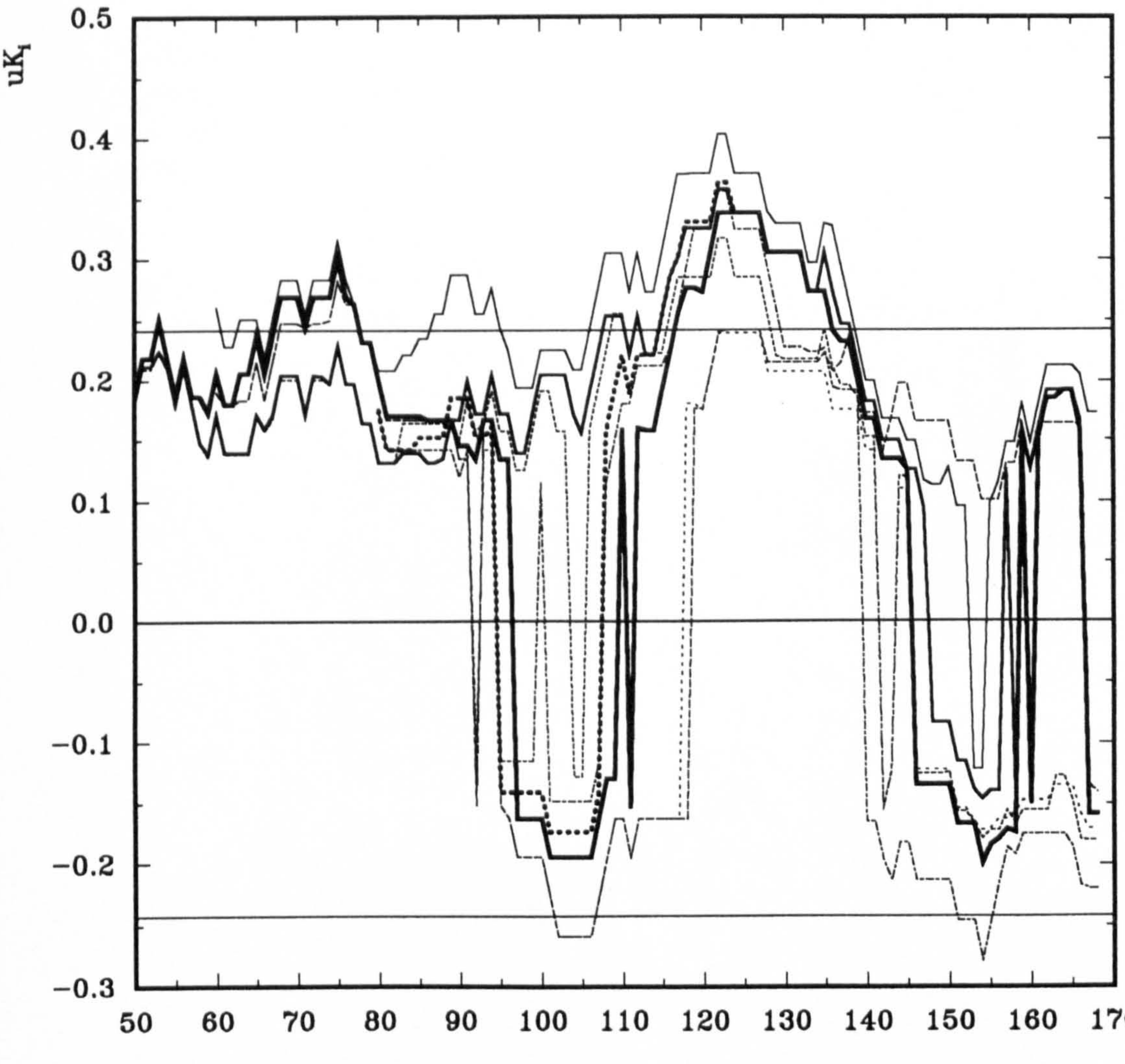


Figure B.1-21. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *CISI1*.

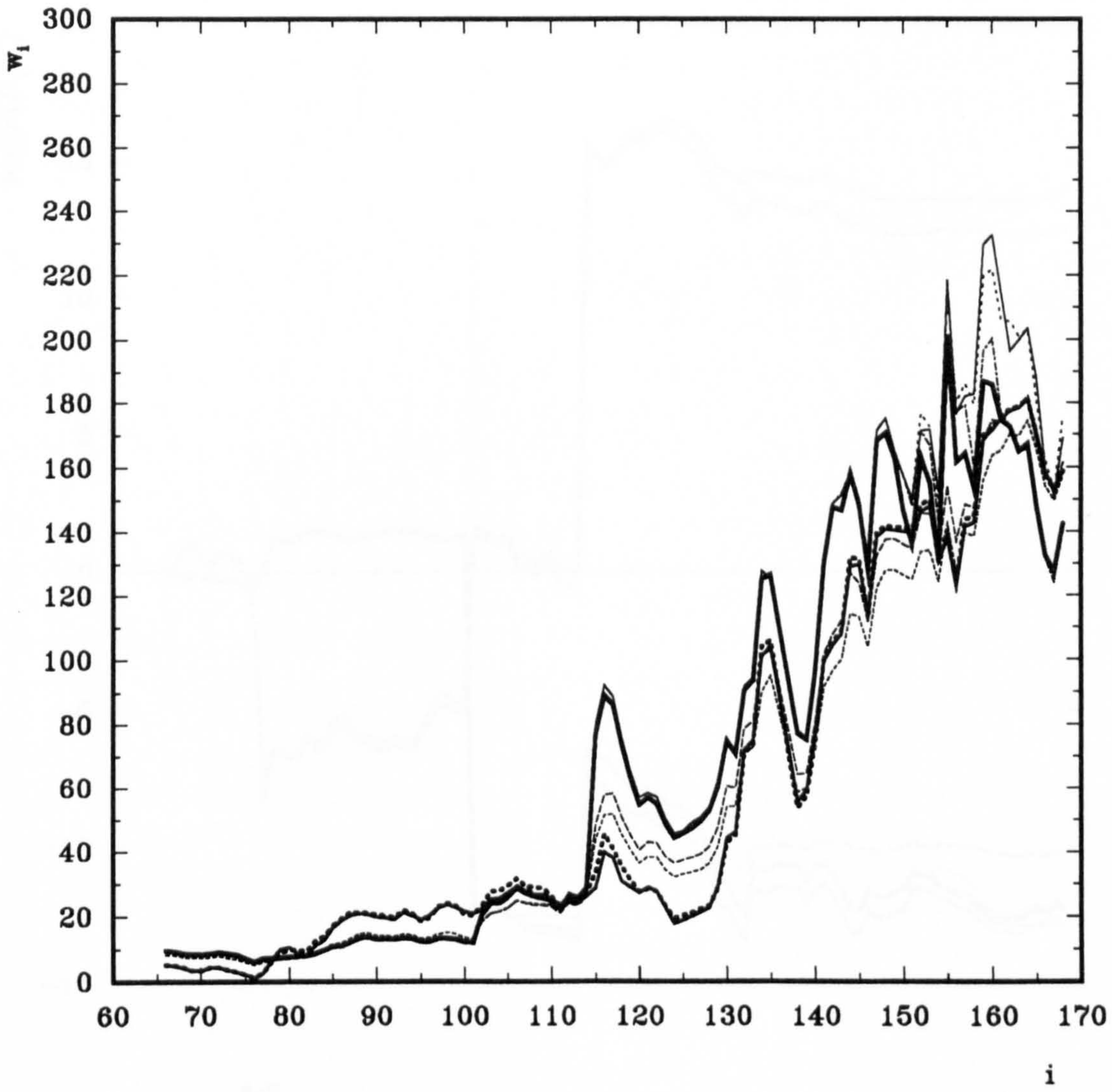


Figure B.1-22. Median predictions from the recalibrated (window = *40*) parametric predictors plotted against failure number for data set *CISI1*.

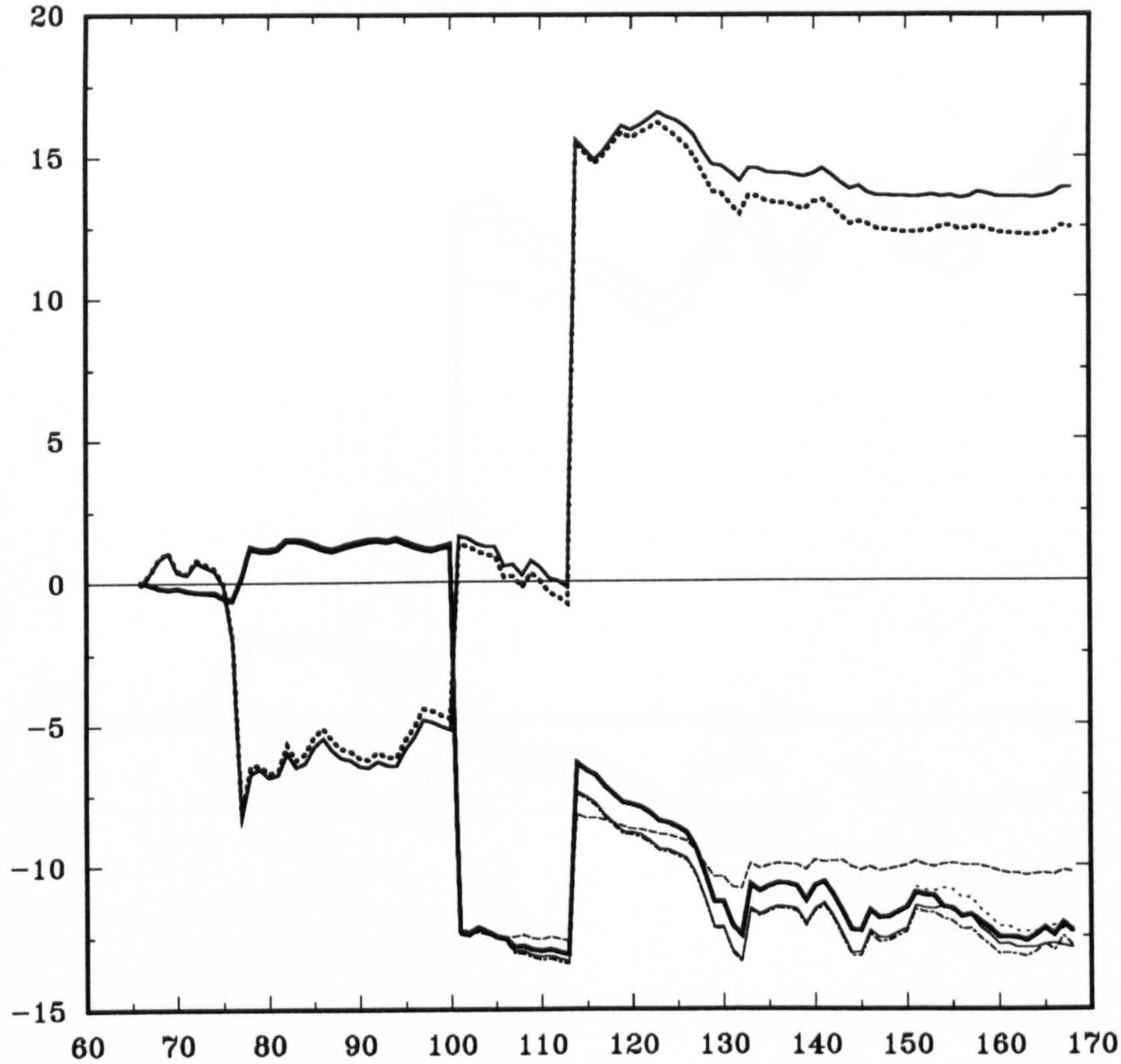


Figure B.1-23. *log(PLR)*-plots for the recalibrated (window = *40*) parametric predictors versus *DUS40* for data set *CISI1*.

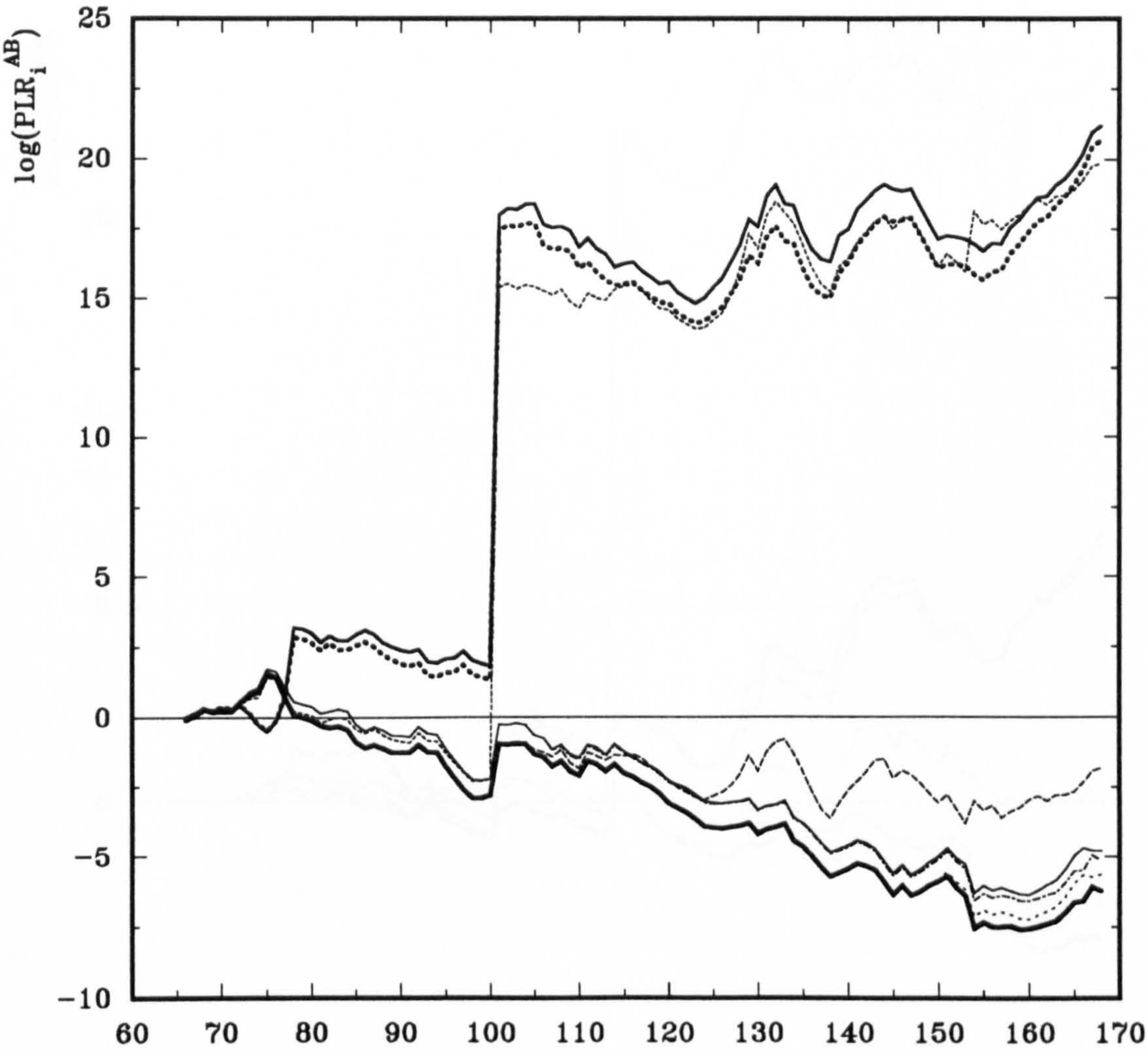


Figure B.1-24. *log(PLR)*-plots for the recalibrated (window = *40*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *CISI1*.

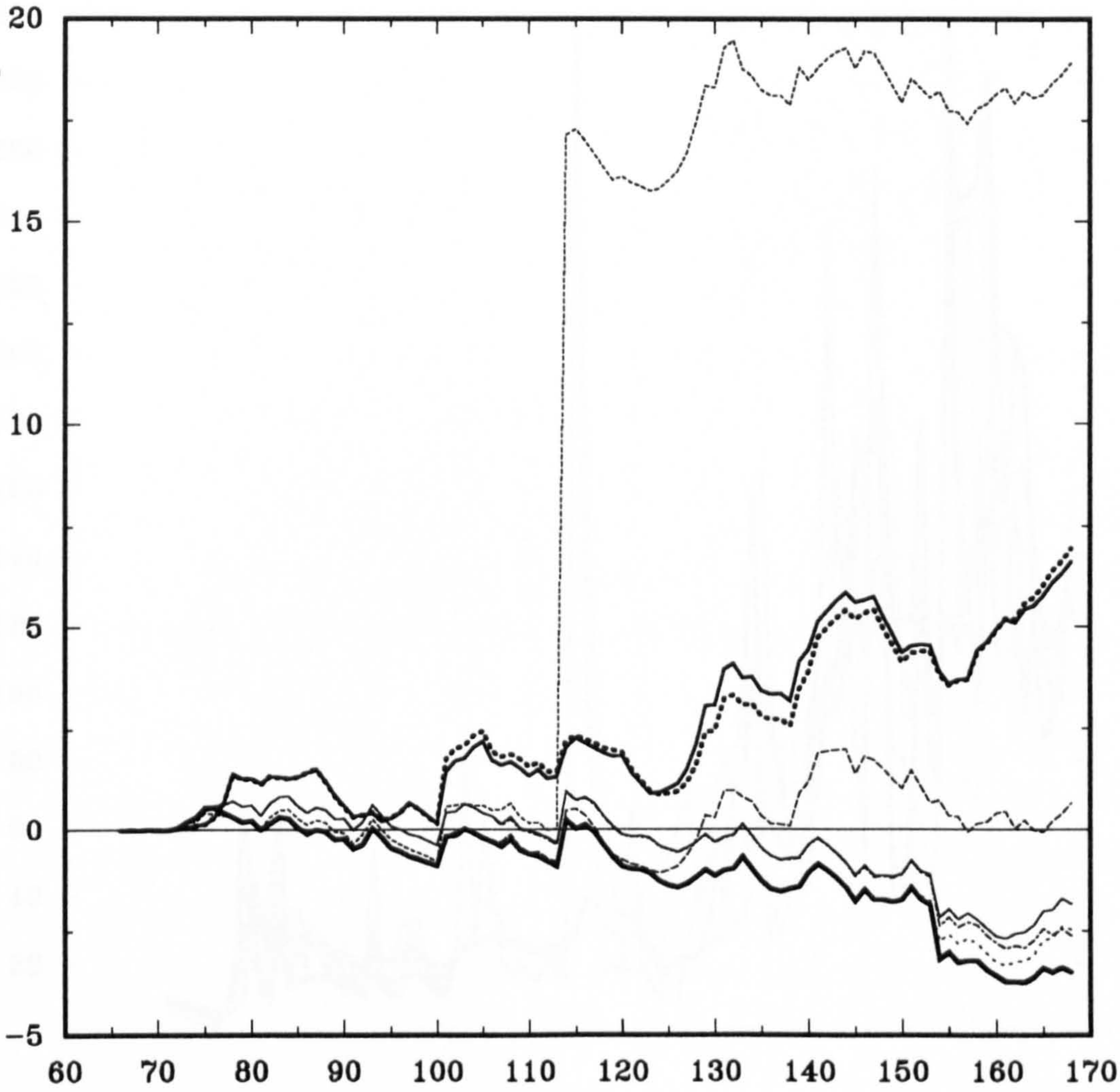


Figure B.1-25. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *CISI1*.

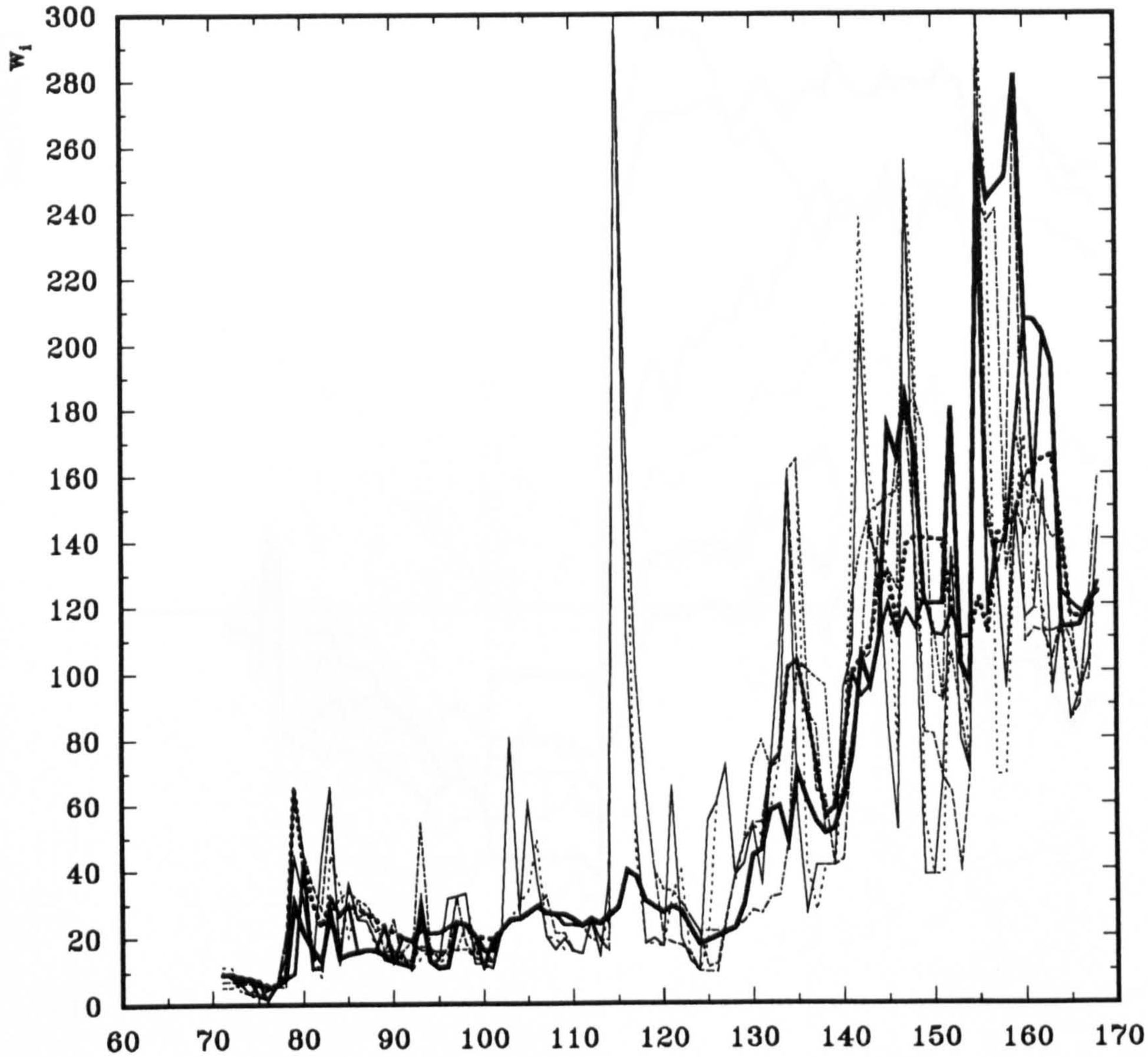


Figure B.1-26. Median predictions from the meta-predictors plotted against failure number for data set *CISI1*.

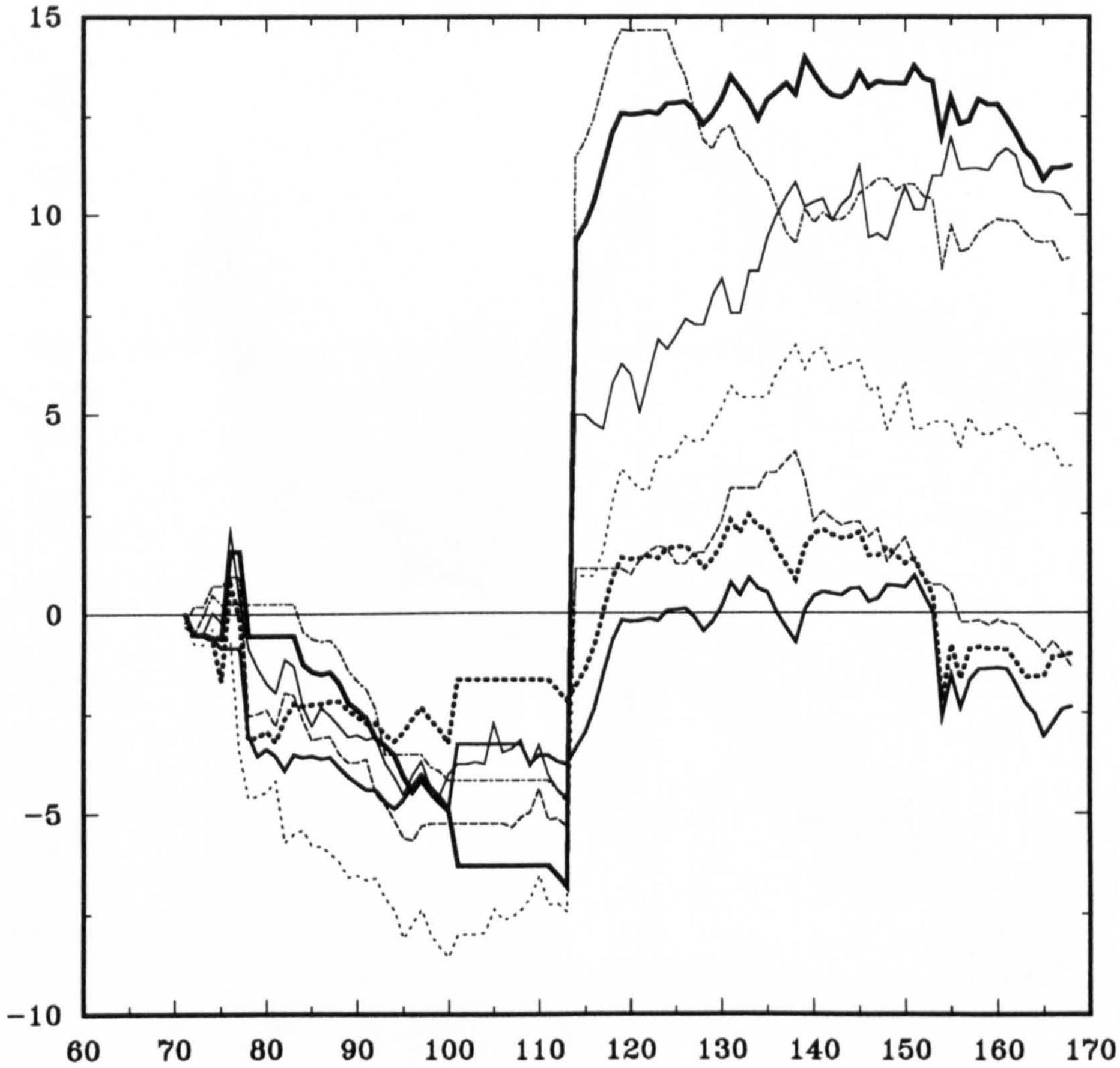


Figure B.1-27. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *CISI1*.

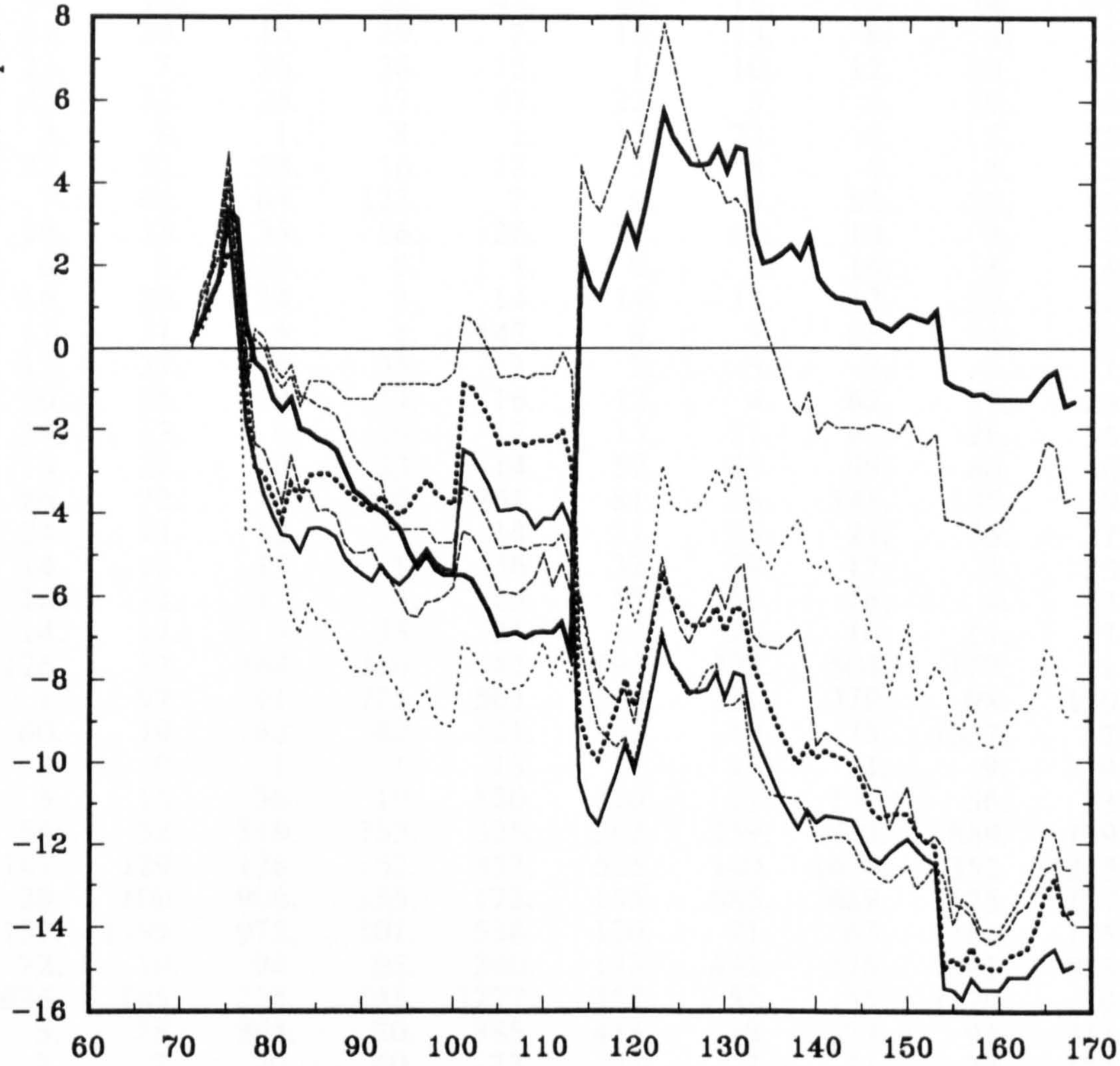


Figure B.1-28. *log(PLR)*-plots for the meta-predictors versus *LNHPP* for data set *CISI1*.

B.2 Data Set CISI2

10.	11.	11.	2.	23.	1.	21.	27.	38.	12.
14.	14.	24.	22.	42.	14.	18.	10.	14.	47.
21.	29.	15.	29.	7.	10.	13.	8.	5.	4.
23.	7.	26.	38.	15.	1.	10.	12.	23.	42.
43.	32.	25.	17.	47.	22.	5.	6.	19.	4.
3.	8.	1.	8.	1.	13.	23.	6.	5.	25.
27.	22.	53.	16.	18.	3.	8.	6.	3.	12.
7.	68.	64.	123.	7.	9.	3.	52.	75.	55.
18.	15.	35.	16.	26.	34.	62.	10.	3.	17.
6.	2.	13.	9.	4.	8.	8.	16.	3.	4.
16.	30.	34.	3.	14.	14.	17.	12.	23.	12.
11.	11.	6.	1.	147.	8.	3.	68.	74.	33.
11.	37.	4.	55.	3.	2.	3.	3.	2.	7.
20.	15.	19.	14.	16.	12.	4.	62.	17.	23.
14.	13.	6.	19.	12.	13.	31.	81.	26.	35.
14.	22.	20.	23.	14.	52.	43.	99.	66.	46.
86.	72.	74.	270.	261.	81.	28.	141.	135.	19.
24.	11.	18.	27.	14.	21.	25.	21.	73.	27.
14.	13.	13.	1.	36.	32.	19.	17.	3.	23.
16.	11.	11.	4.	15.	55.	57.	16.	4.	13.
14.	11.	3.	35.	25.	12.	20.	10.	11.	17.
126.	57.	164.	310.	42.	195.	123.	504.	177.	1.
1.	97.	91.	723.	563.	669.	131.	379.	98.	150.
60.	79.	82.	82.	121.	195.	19.	75.	1337.	17.
8.	9.	1.	1.	13.	11.	13.	31.	9.	9.
3.	14.	36.	19.	120.	120.	23.	134.	36.	23.
56.	32.	319.	155.	325.	262.	139.	434.	889.	139.
141.	129.	128.	152.	357.	563.	140.	1474.	352.	1345.
28.	100.	906.	155.	173.	155.	585.	689.	125.	137.
139.	1199.	975.	101.	538.	120.	91.	63.	1164.	175.
72.	19.	94.	95.	240.	173.	492.	155.	1041.	968.
636.	185.	225.	153.	1277.	457.	52.	35.	1120.	79.
5.	78.	305.	20.	385.	413.	48.	373.	93.	311.
3.	7.	20.	60.	73.	23.	7.	31.	28.	174.
46.	120.	4.	2.	59.	24.	14.	34.	2.	4.
5.	5.	5.	5.	254.	141.	88.	96.	192.	55.
52.	2.	17.	7.	25.	127.	229.	14.	36.	24.
33.	105.	19.	110.	67.	45.	126.	56.	315.	430.
942.	16.	103.	71.	125.	429.	1486.	272.	201.	23.
120.	14.	585.	785.						

Table B.2-1. Data set *CISI2*; 394 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	F	F	F	A	A	C	C	D	B	F	B
GO	F	F	F	F	A	A	C	B	D	C	E	B
MO	F	F	F	F	C	A	C	A	B	B	C	B
DU	F	F	F	D	D	A	D	A	D	A	D	A
LM	F	F	F	F	A	A	B	B	B	C	D	A
LNHPP	F	F	F	F	A	A	A	B	B	C	D	A
LV	F	F	F	C	B	A	B	A	B	A	B	A
KL	F	F	F	B	B	A	B	A	B	A	C	A
CM1	B	F	A	F	A	A	B	A	B	A	C	A
CM2	F	F	F	F	A	A	A	A	C	A	D	A
CM3	F	F	F	F	A	A	A	A	C	A	D	A
OTY20	B	F	A	C	A	A	A	A	B	A	B	A
OTY50	C	F	C	D	A	A	B	A	C	A	D	A
OTL	D	F	D	F	A	A	B	A	C	A	D	A
OTL20	A	F	A	D	A	A	B	A	A	A	A	A
OTL50	A	F	A	D	A	A	C	A	C	A	C	A

Table B.2-2.1. *u*- and *y*-plot significance levels for data set *CISI2* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
A	A	A	A	B	A	A	A	A	B	B	B	A	A	A	B

Table B.2-2.2. *u*- and *y*-plot significance levels for data set *CISI2* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

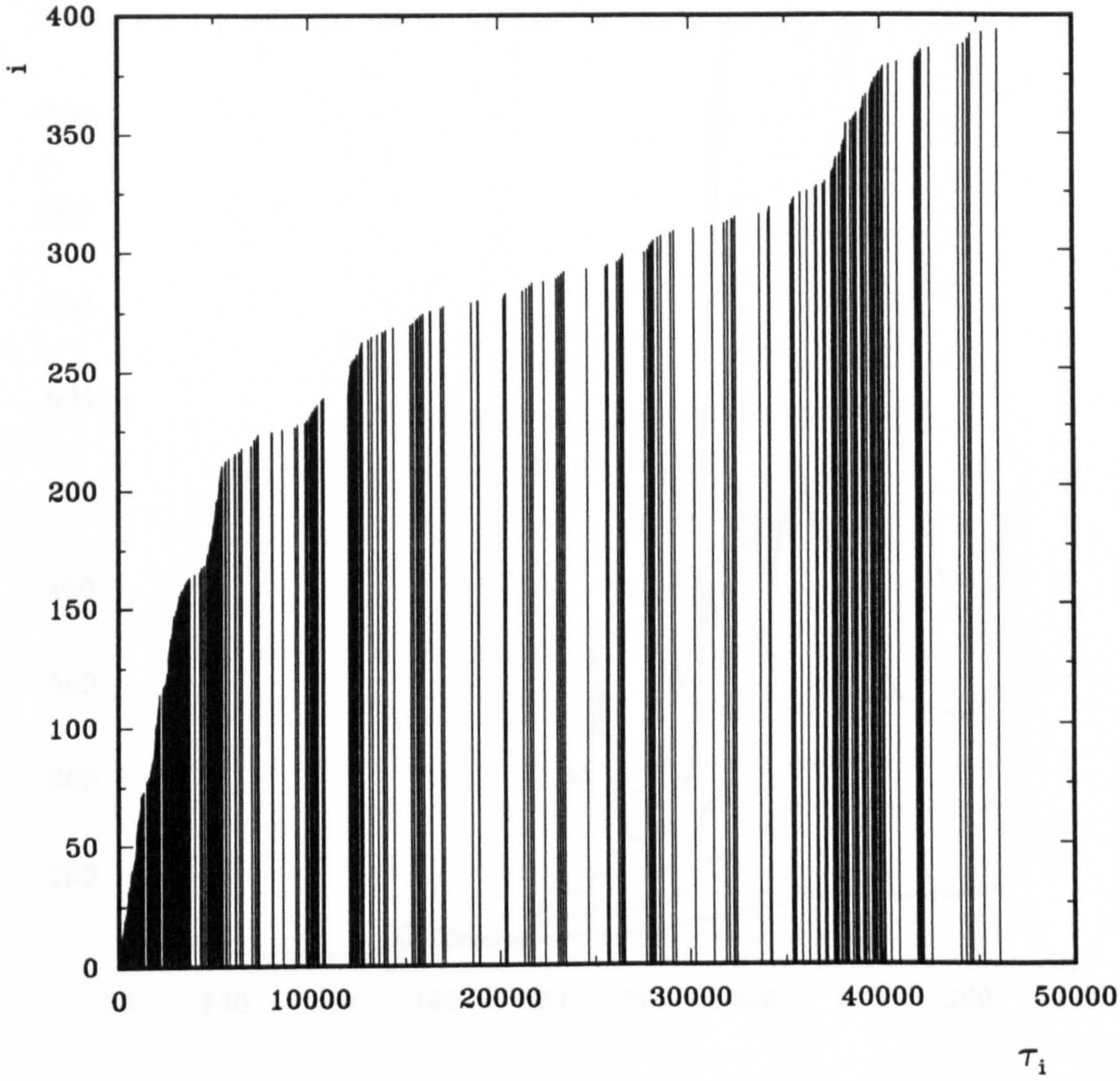


Figure B.2-3. Cumulative number of failures plotted against total elapsed time for data set *CISI2*.

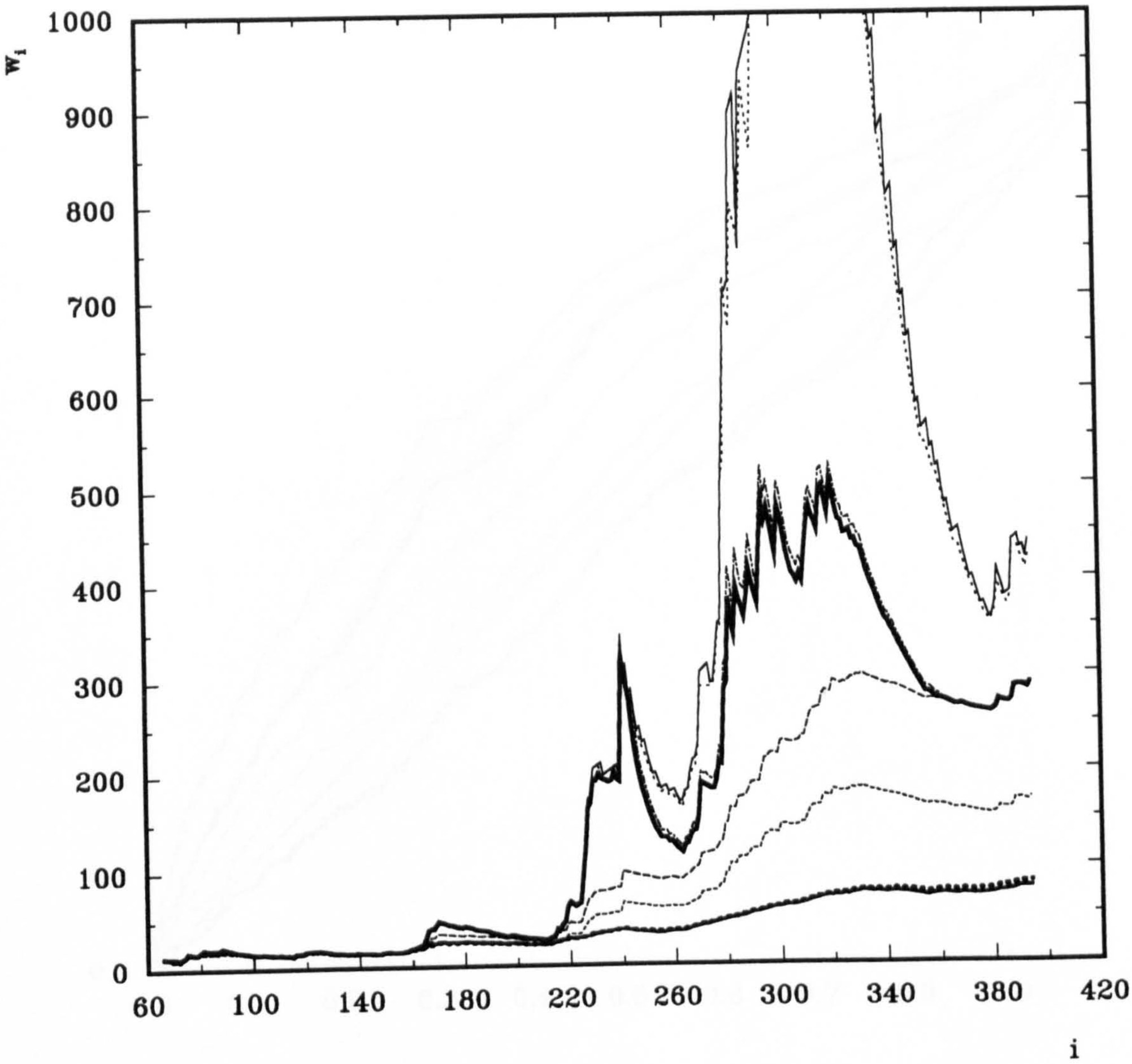
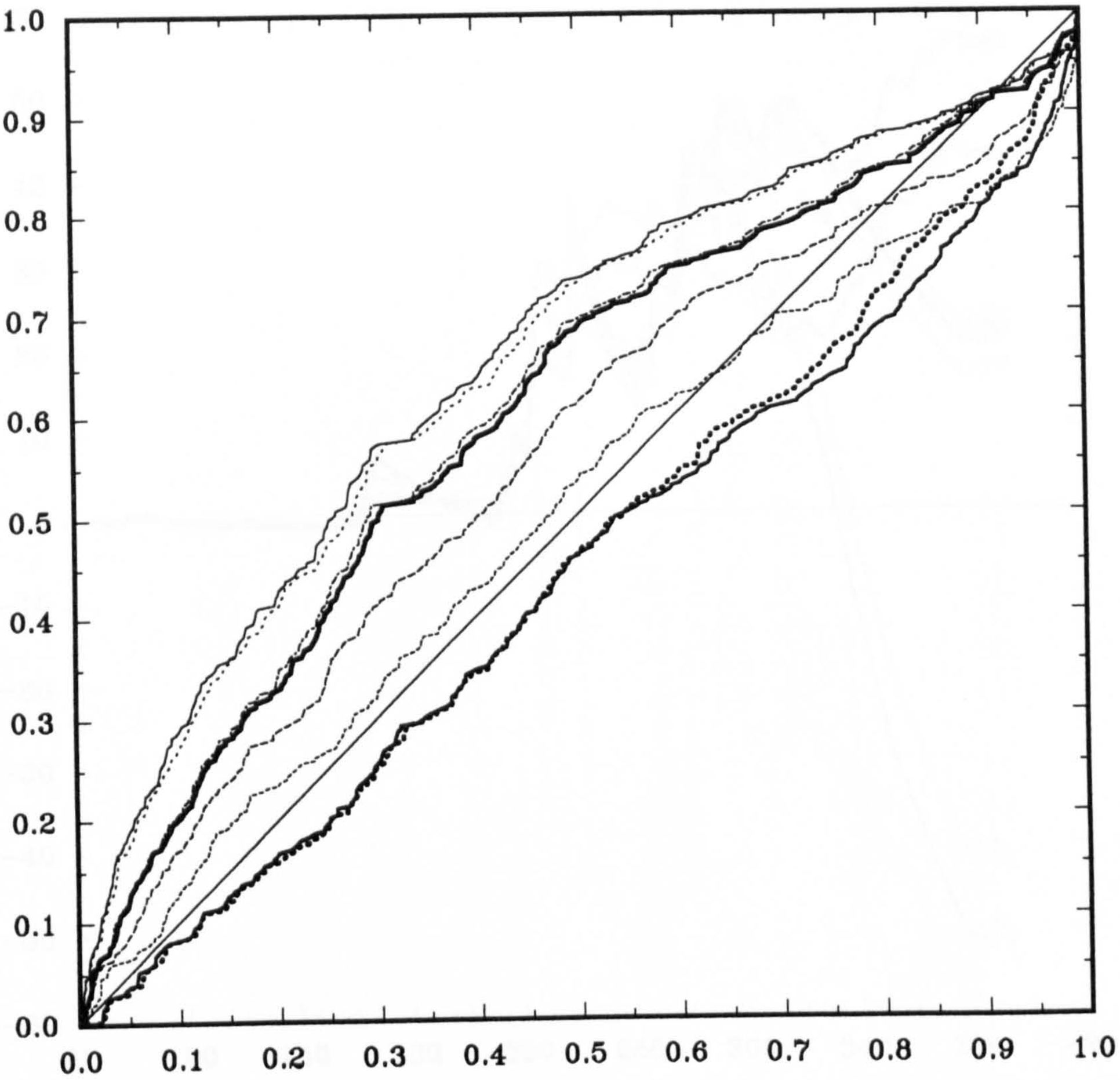


Figure B.2-4. Median predictions from the raw parametric predictors plotted against failure number for data set *CISI2*.



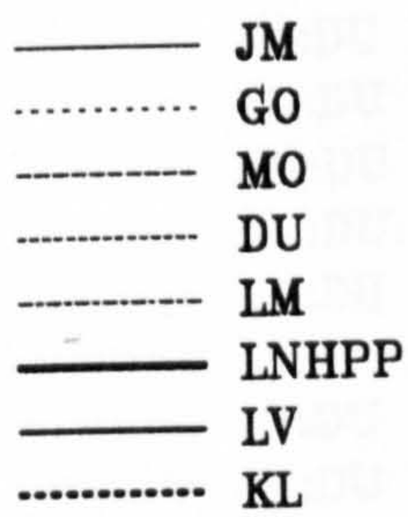


Figure B.2-5. *u*-plots for the raw parametric predictors for data set *CISI2*.

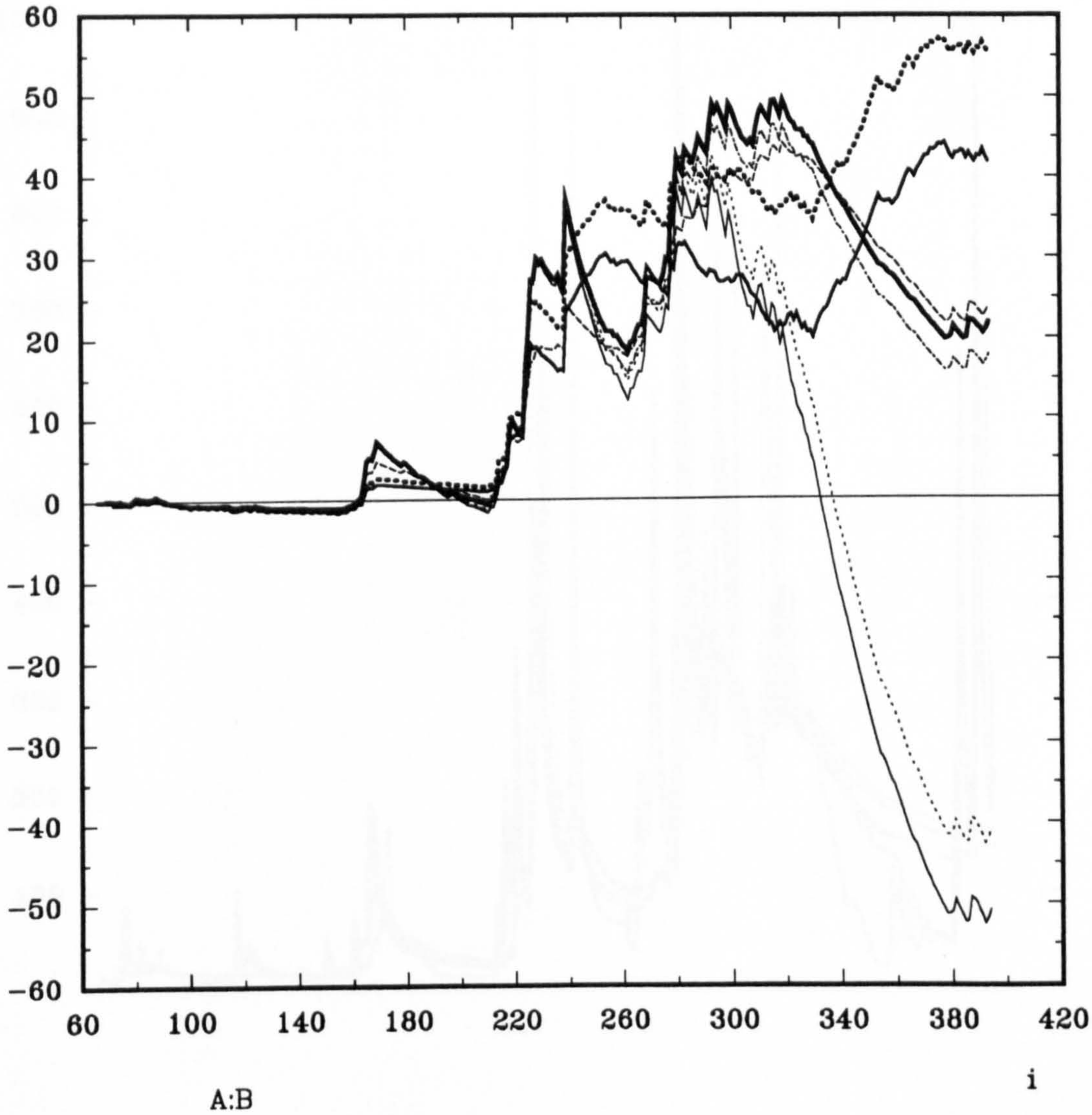


Figure B.2-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *CISI2*.

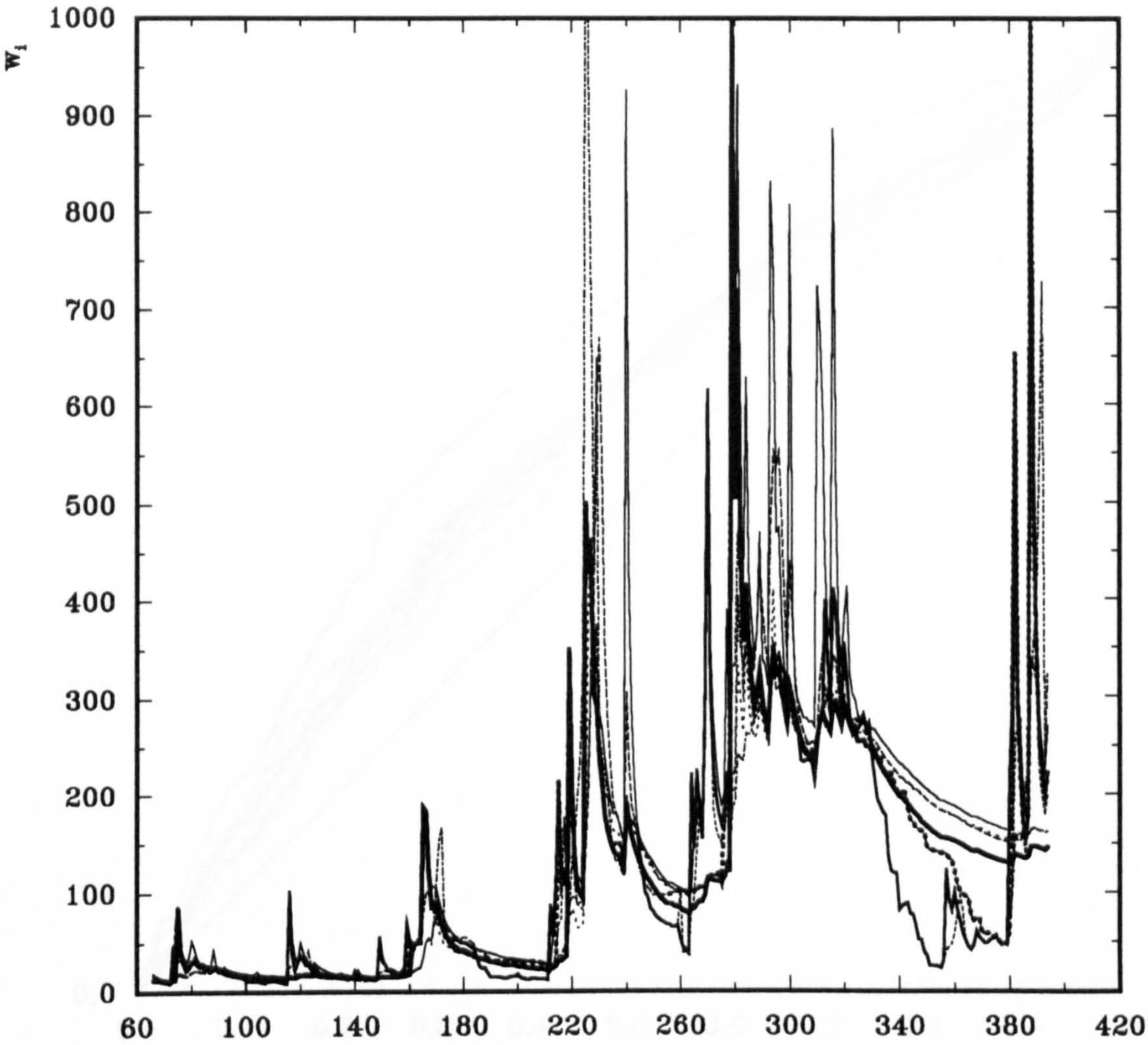


Figure B.2-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *CISI2*.

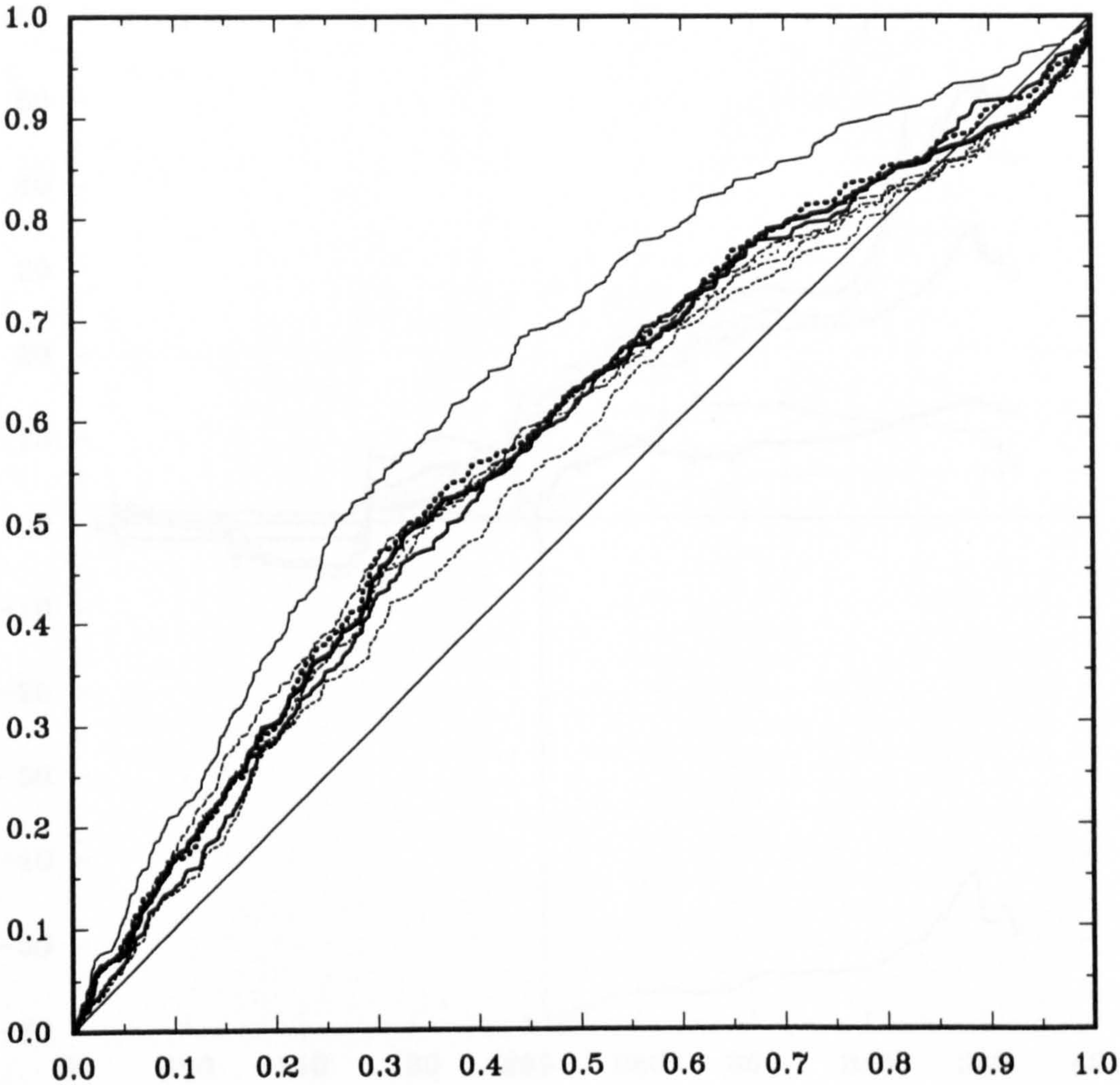


Figure B.2-8. *u*-plots for the raw non-parametric predictors for data set *CISI2*.

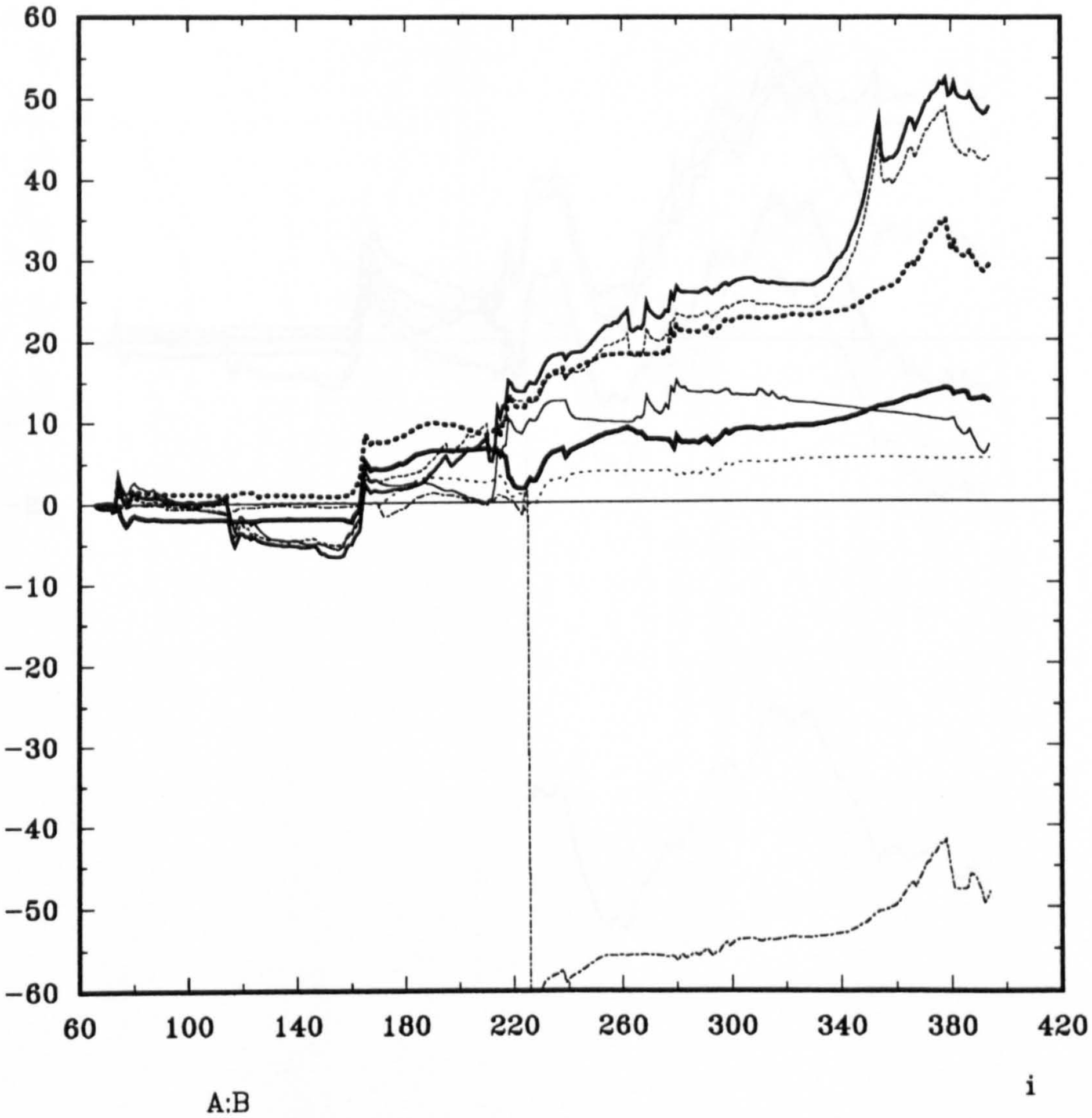


Figure B.2-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *CISI2*.

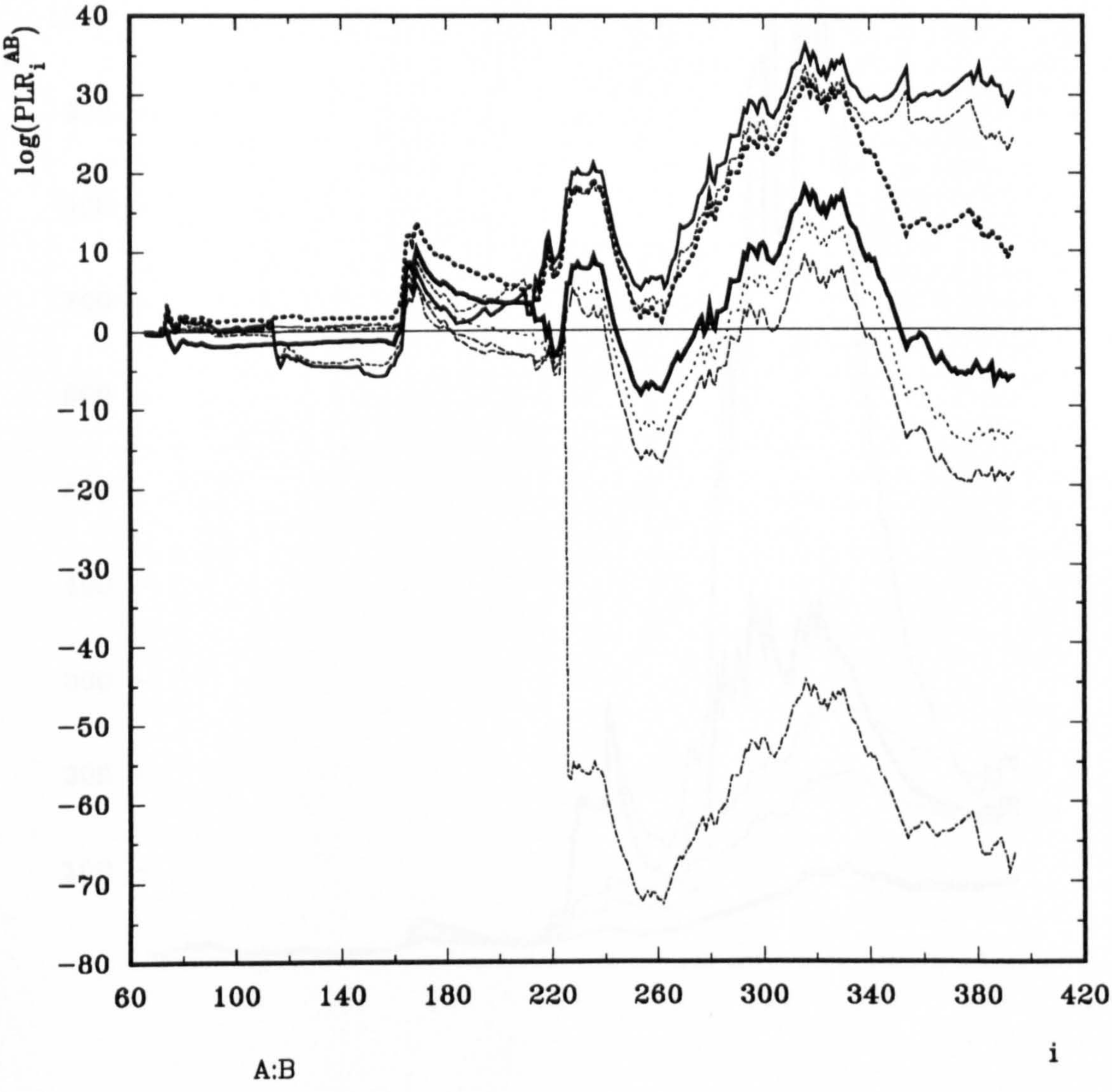


Figure B.2-10. *log(PLR)*-plots for the raw non-parametric predictors versus *KL* for data set *CISI2*.

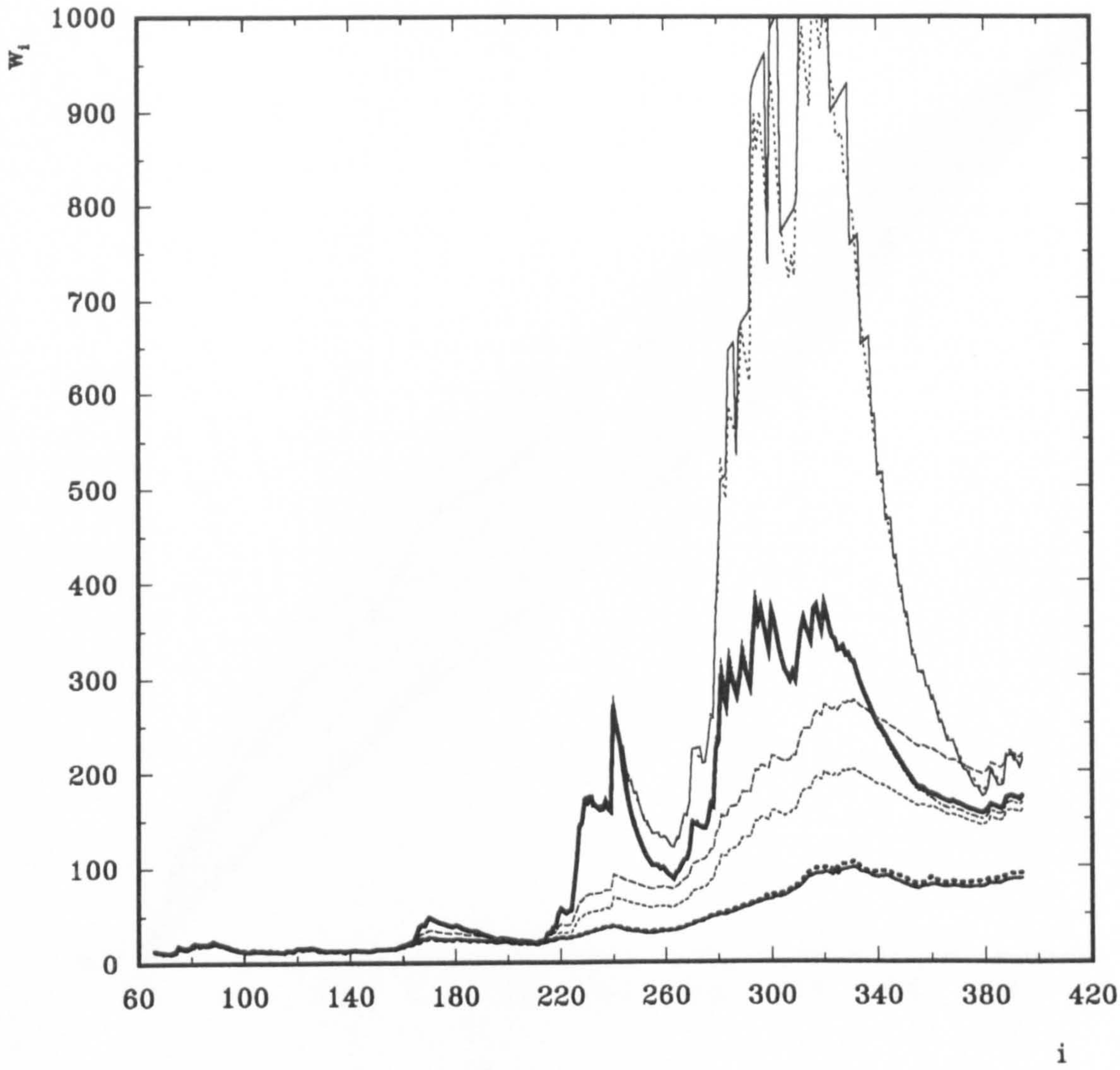


Figure B.2-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *CISI2*.

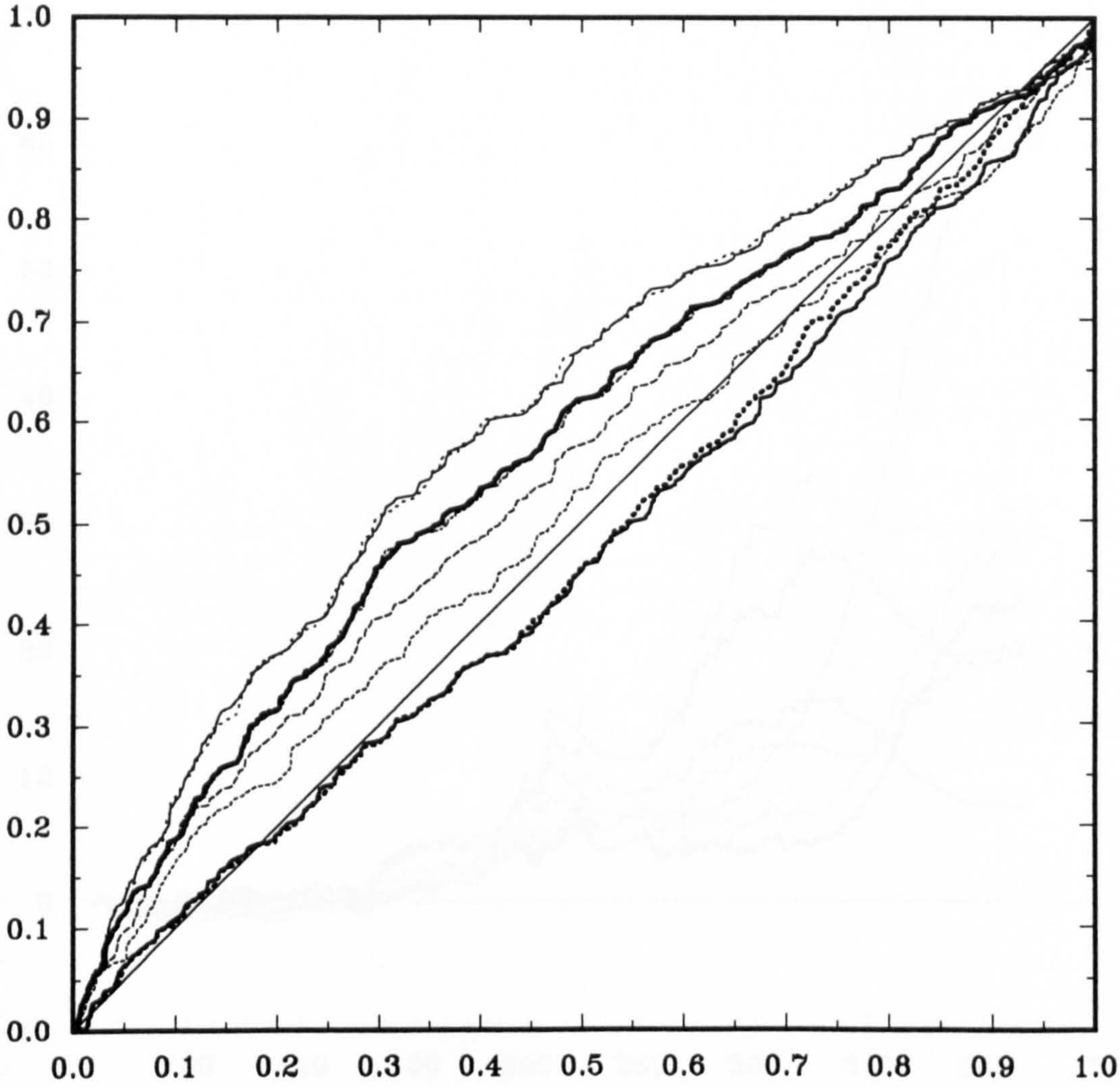


Figure B.2-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *CISI2*.

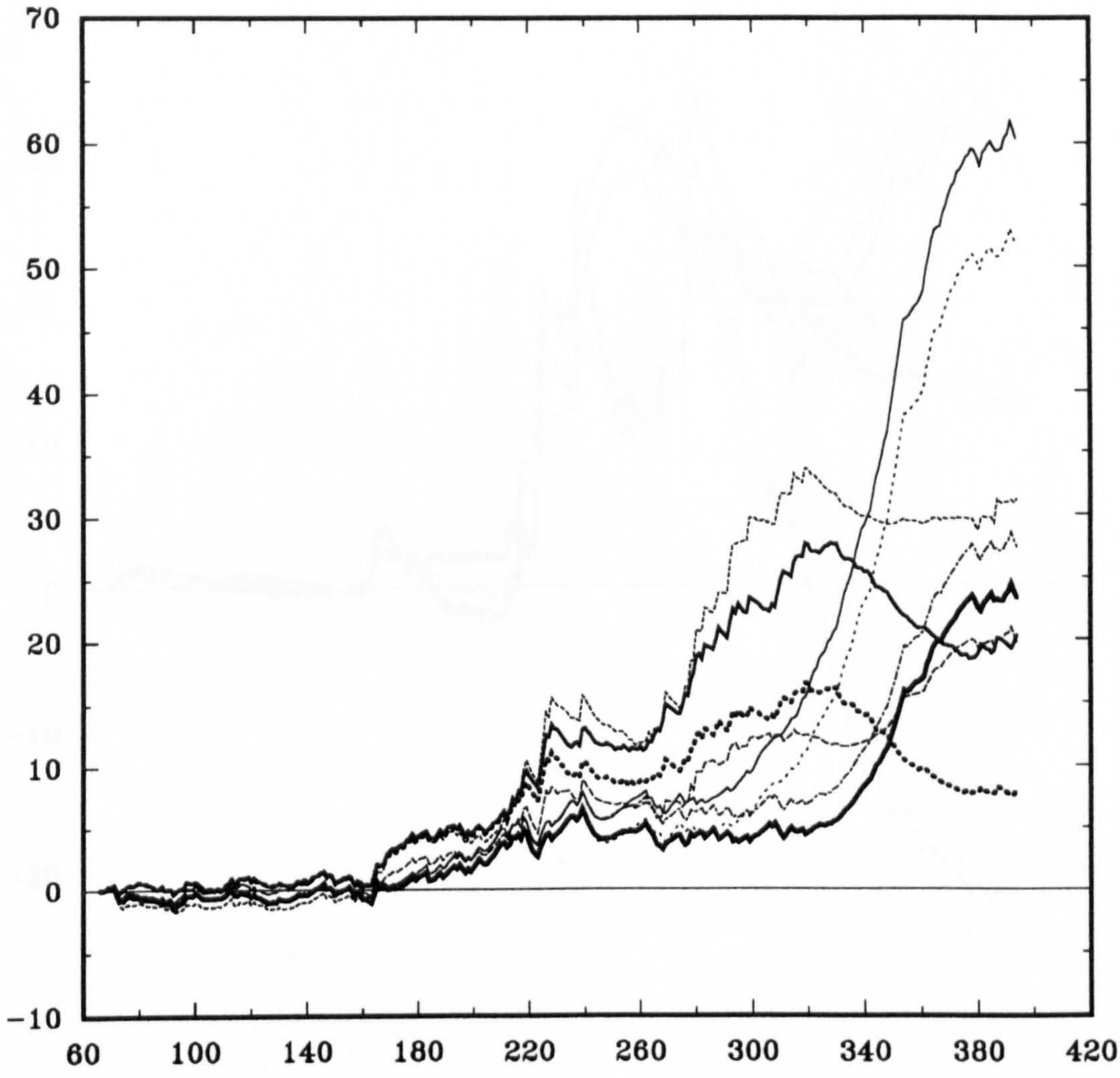


Figure B.2-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *CISI2*.

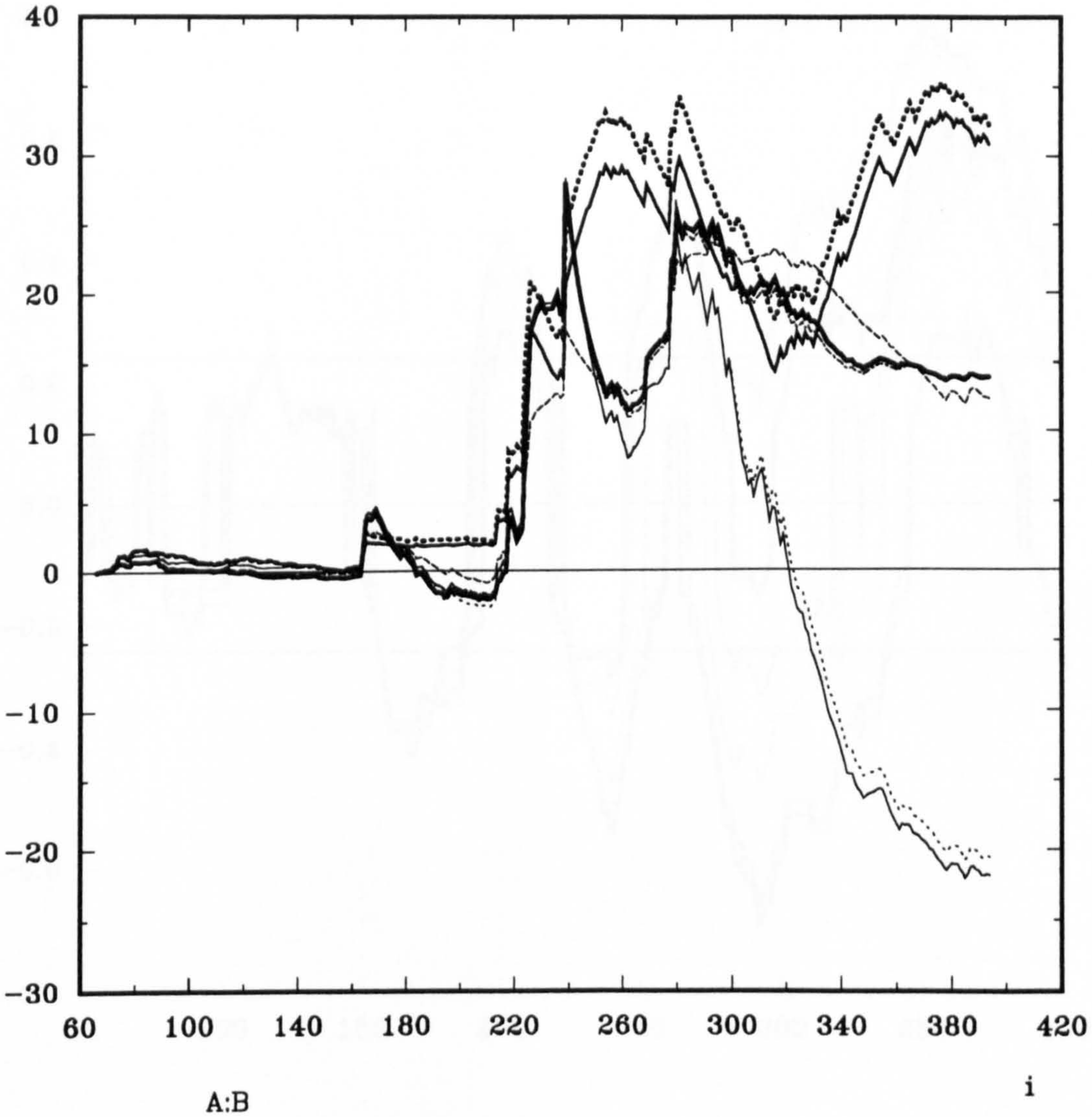


Figure B.2-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *CISI2*.

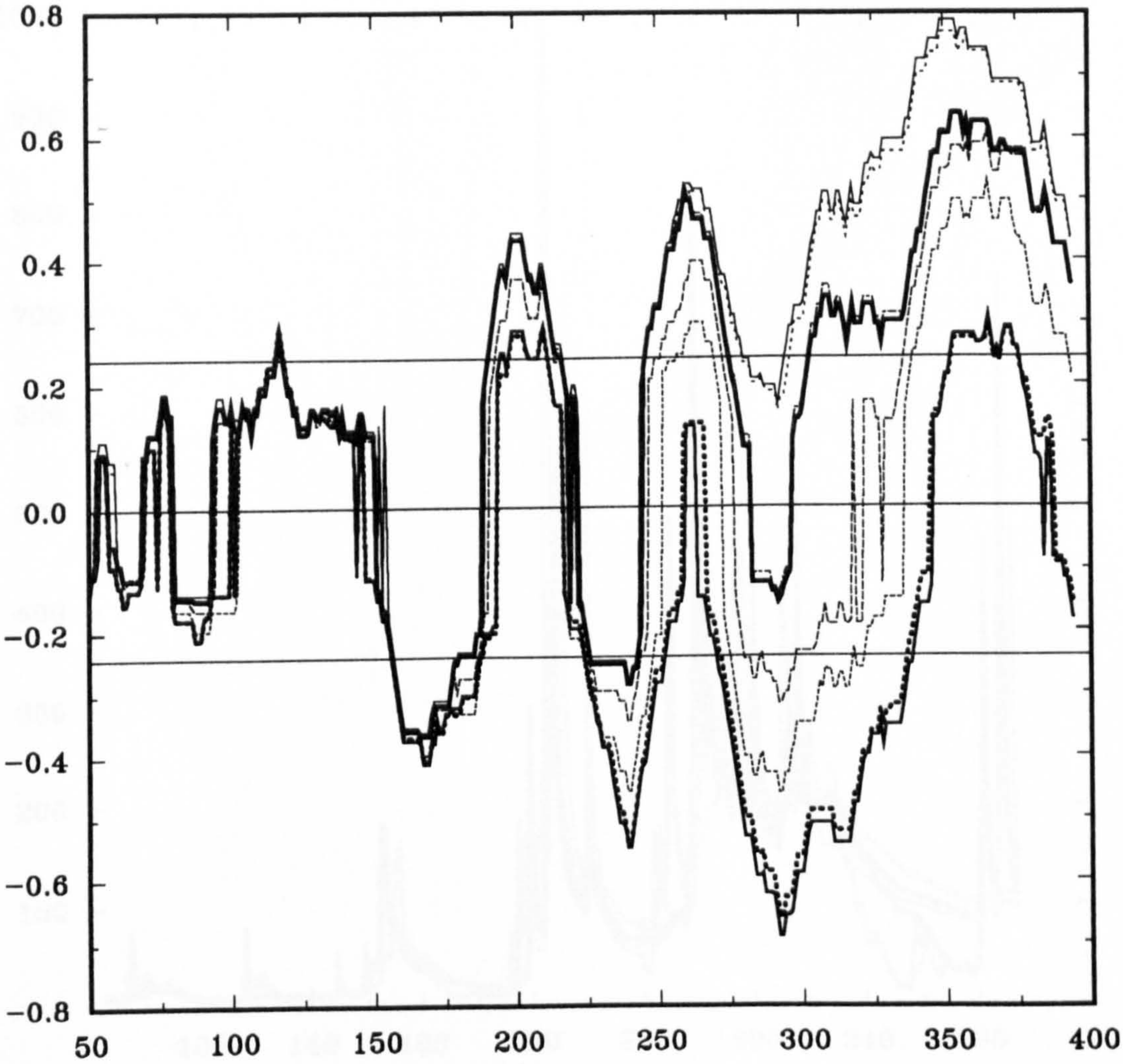


Figure B.2-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *CISI2*.

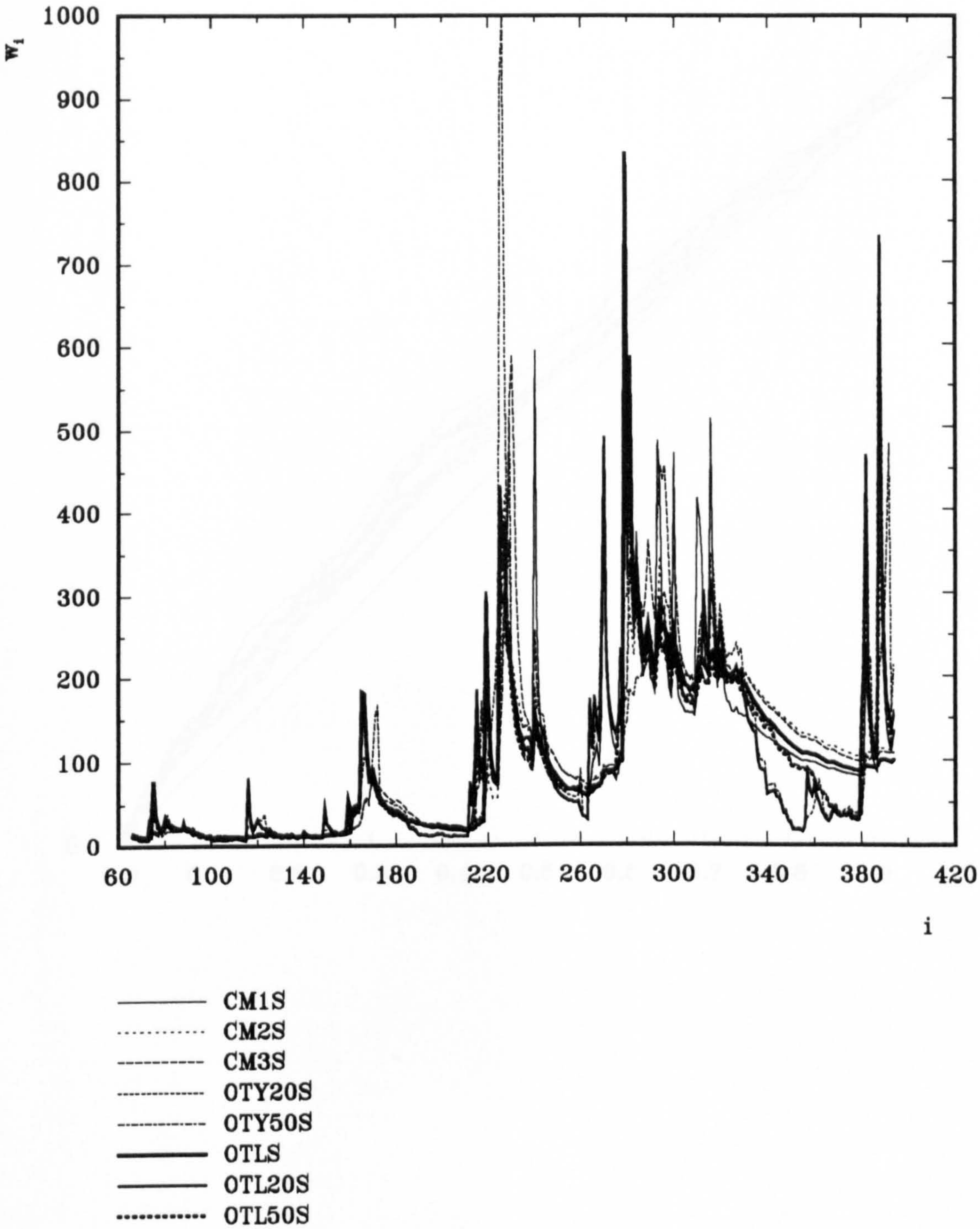


Figure B.2-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *CISI2*.

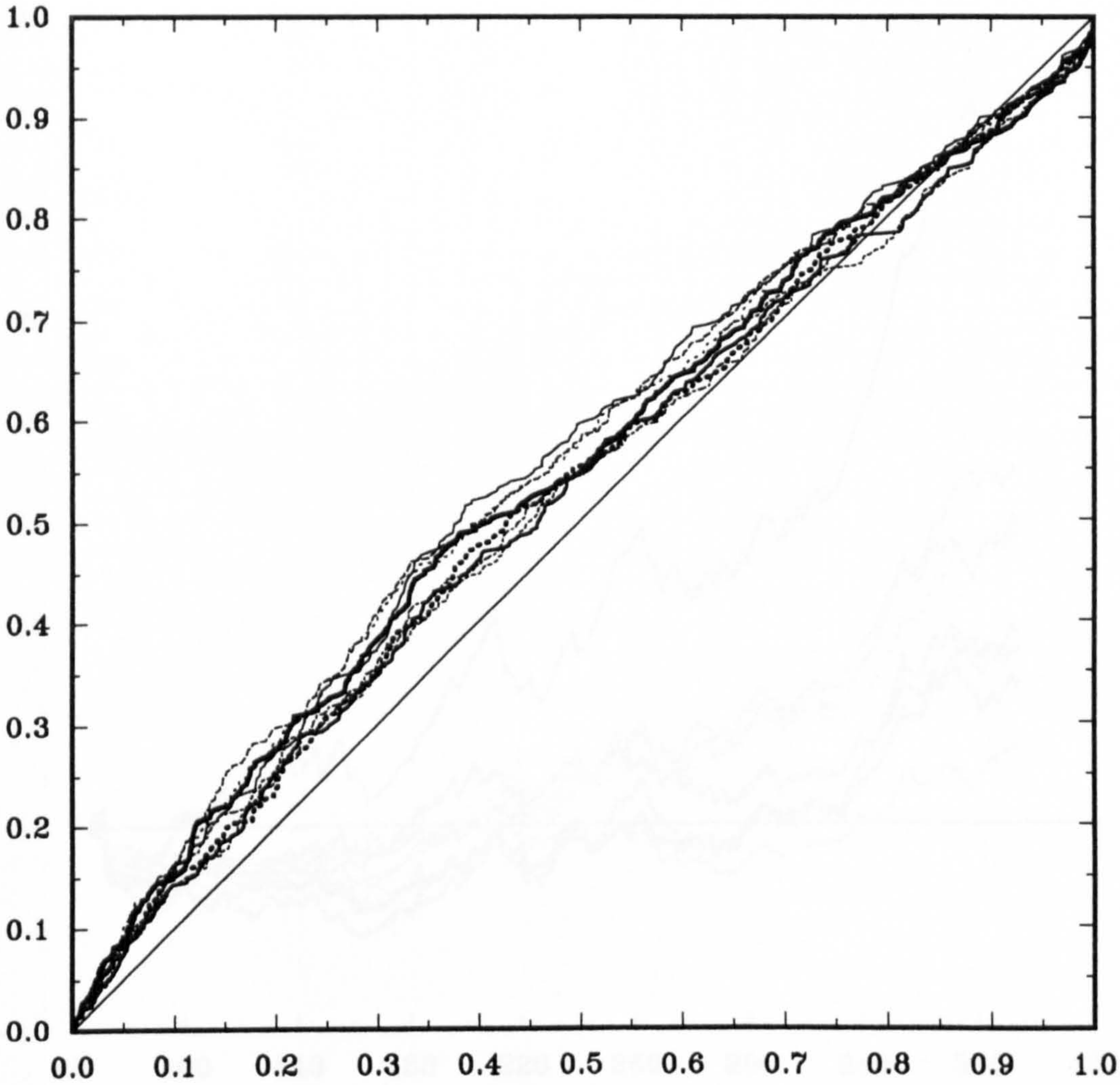


Figure B.2-17. *u*-plots for the recalibrated (no window) non-parametric predictors for data set *CISI2*.

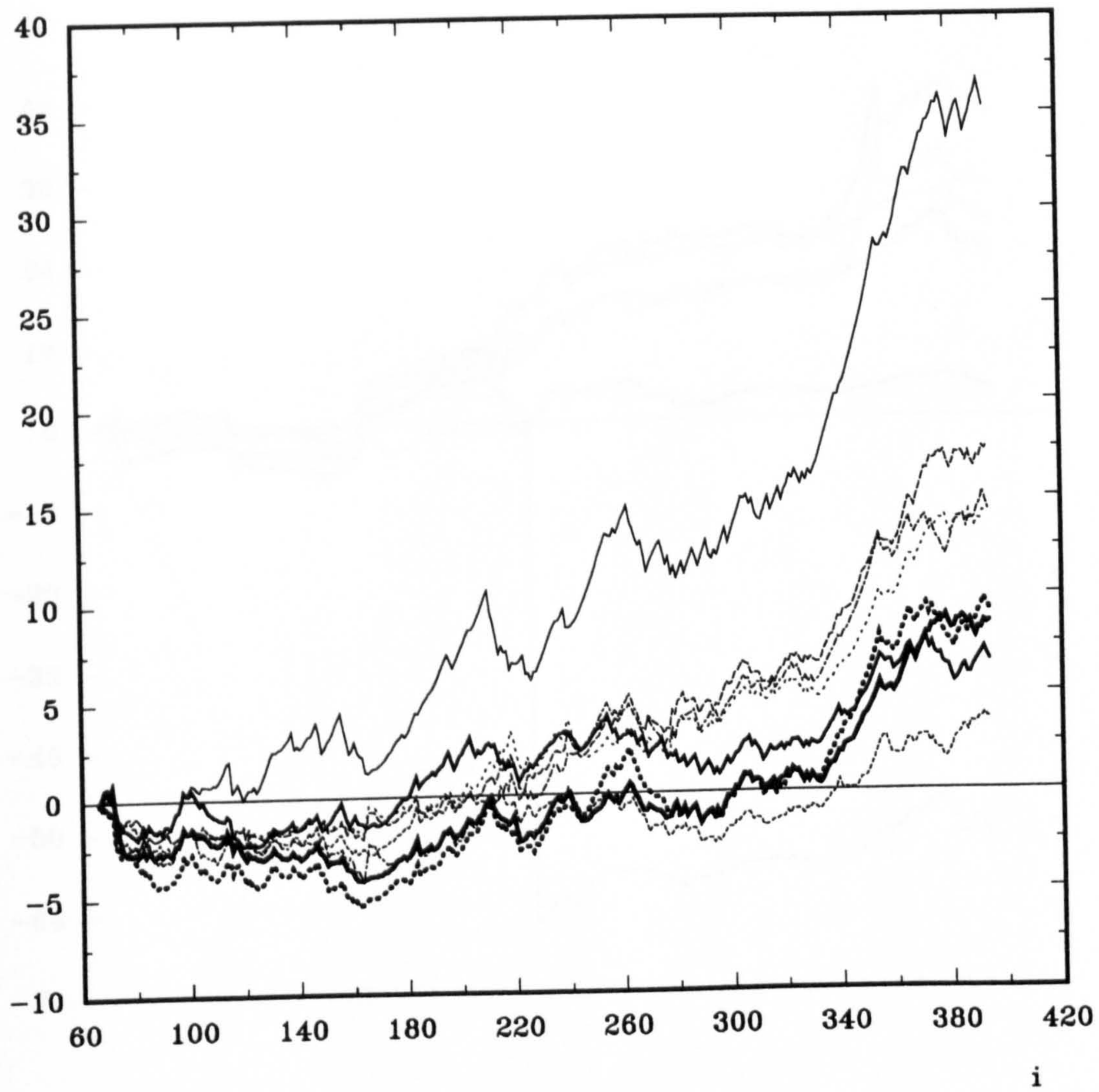


Figure B.2-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *CISI2*.

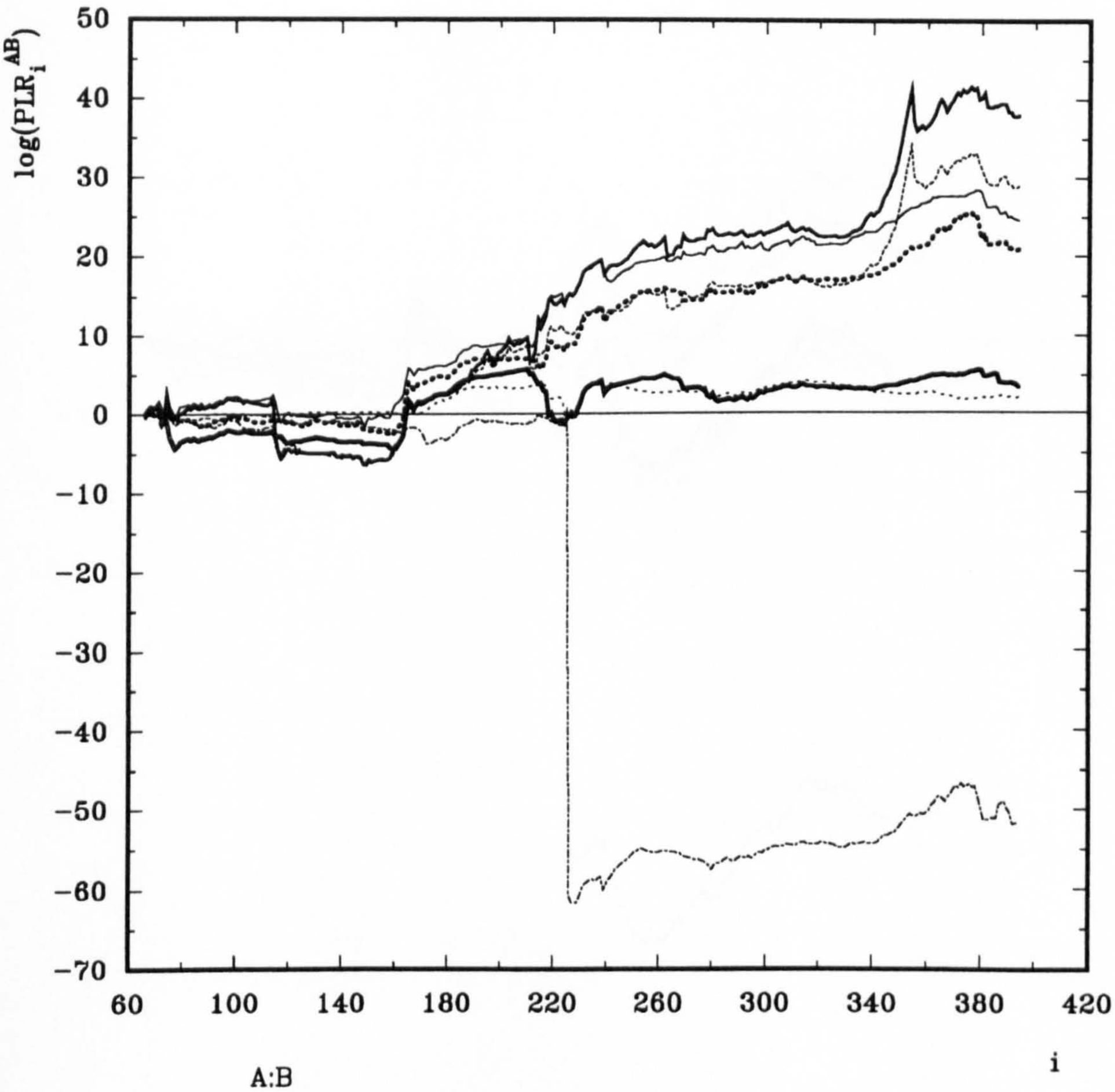


Figure B.2-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *CISI2*.

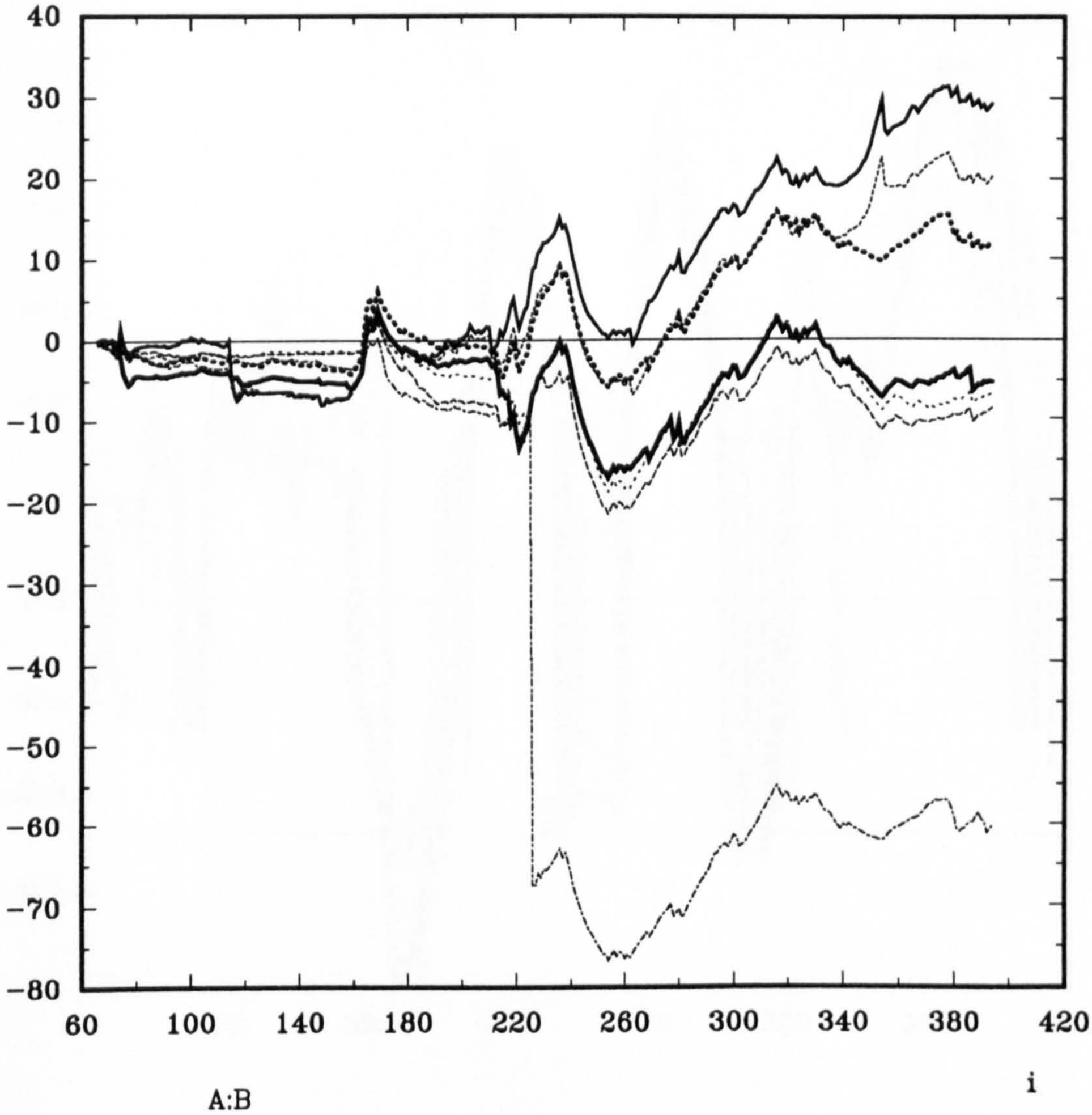


Figure B.2-20. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *KLS* for data set *CISI2*.

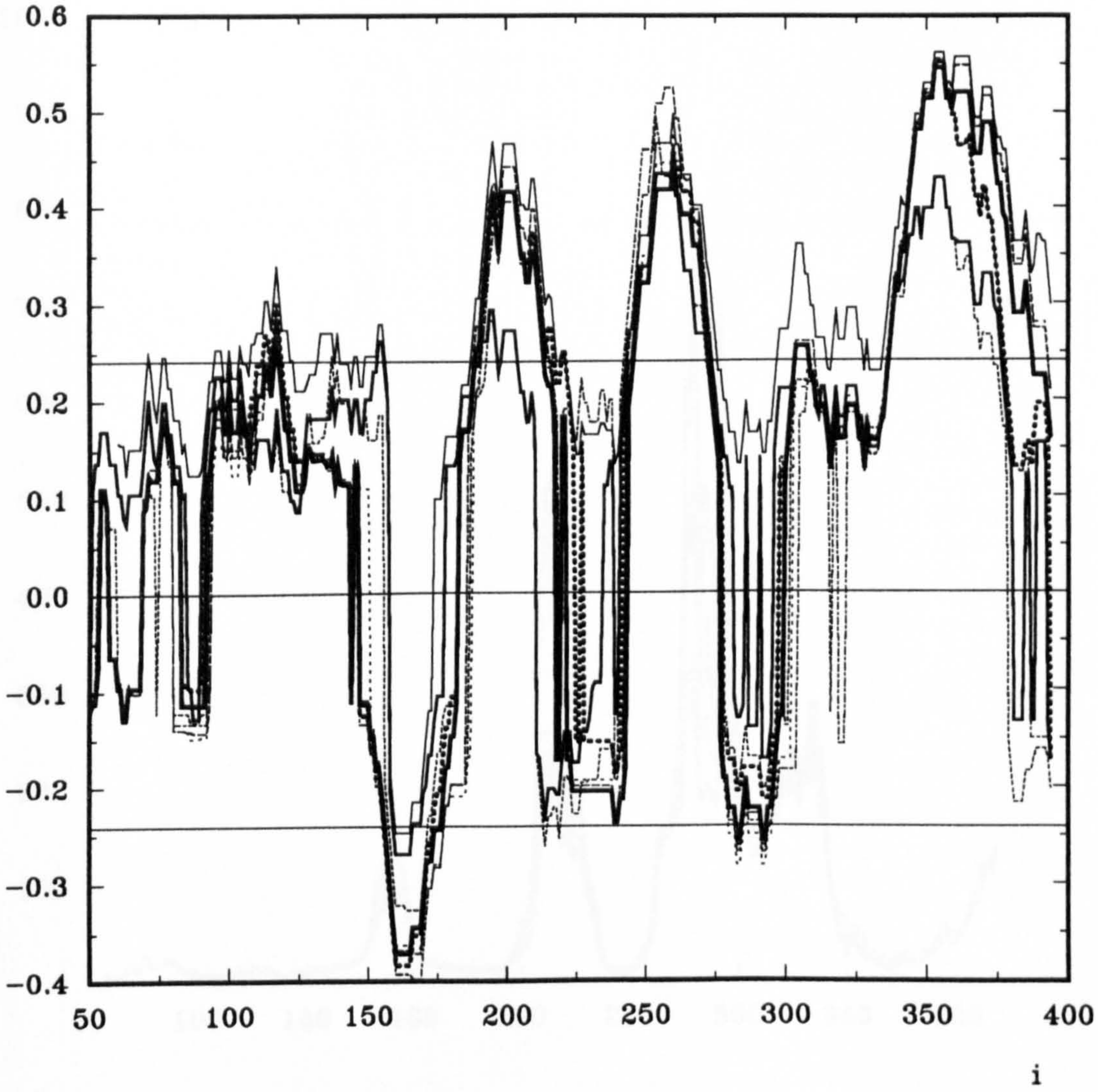


Figure B.2-21. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *CISI2*.

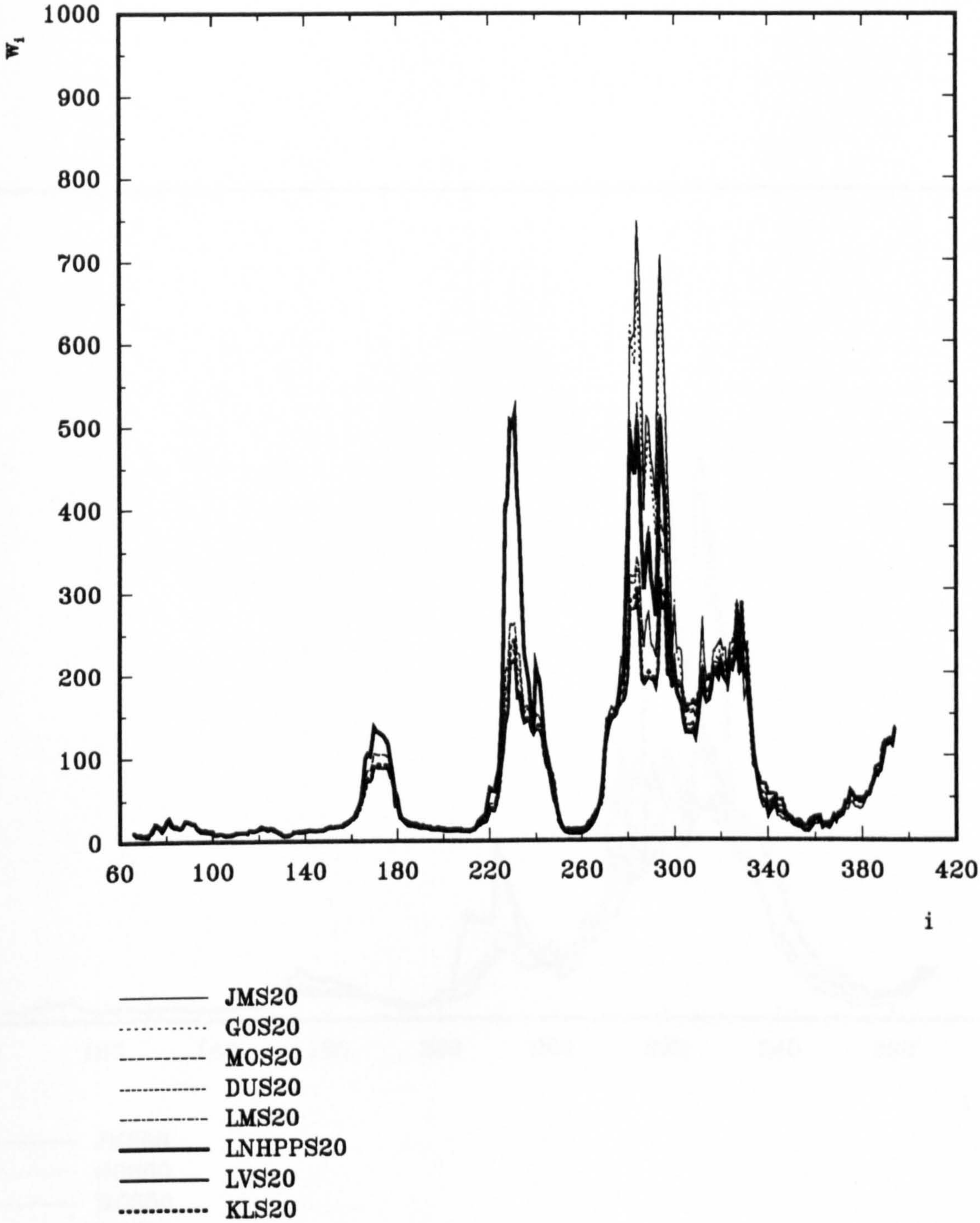


Figure B.2-22. Median predictions from the recalibrated (window = *20*) parametric predictors plotted against failure number for data set *CISI2*.

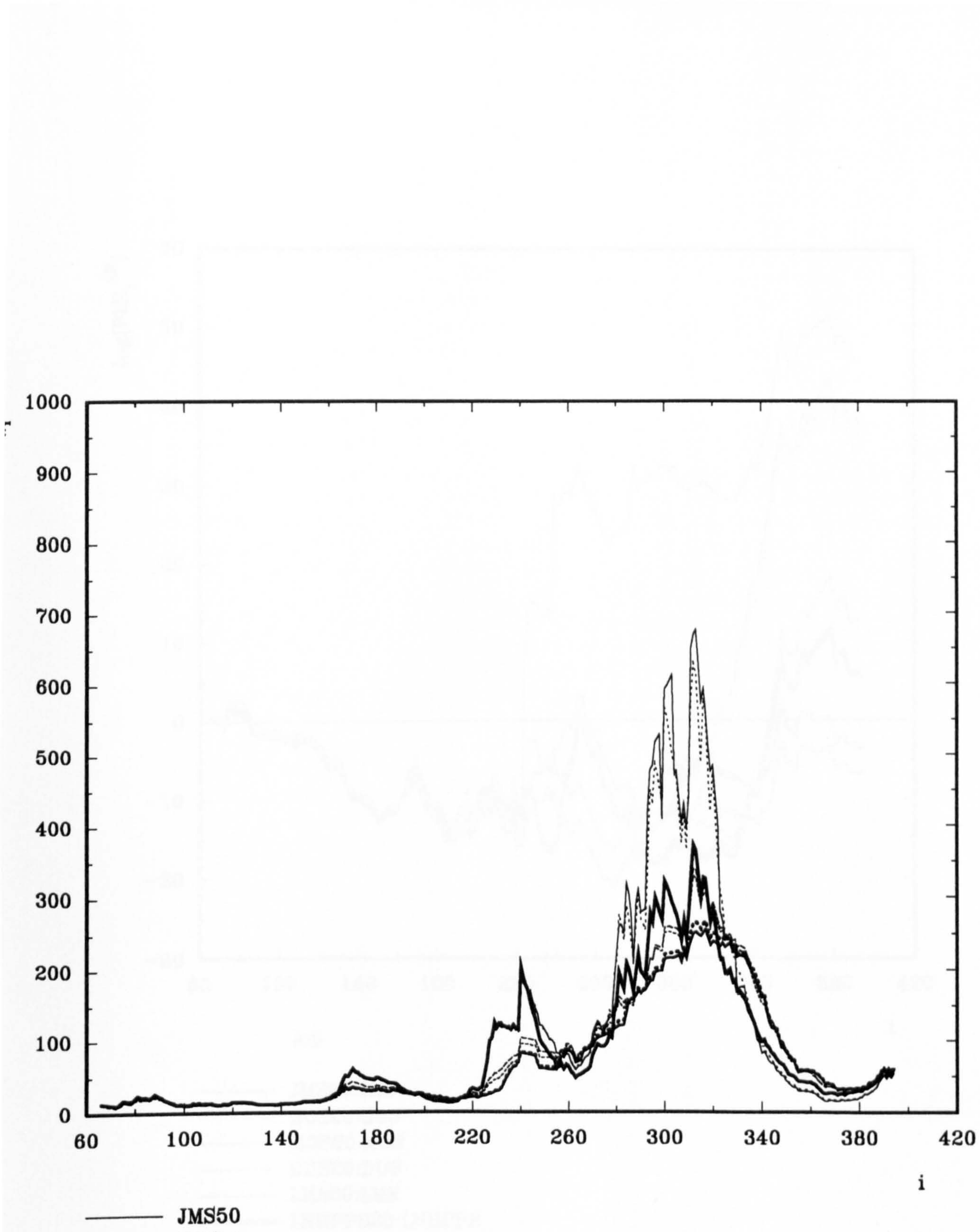


Figure B.2-23. Median predictions from the recalibrated (window = *50*) parametric predictors plotted against failure number for data set *CISI2*.

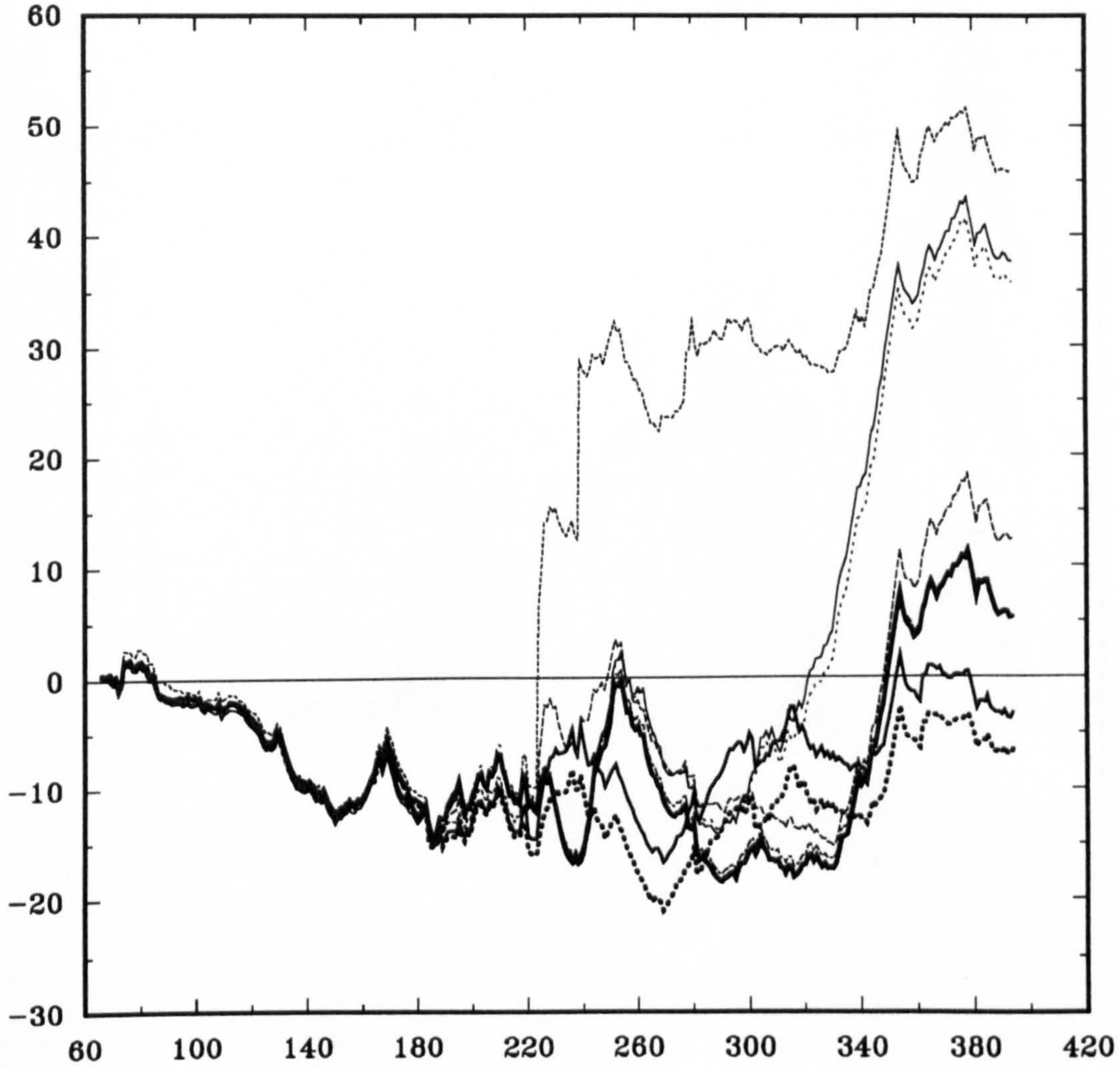


Figure B.2-24. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *CISI2*.

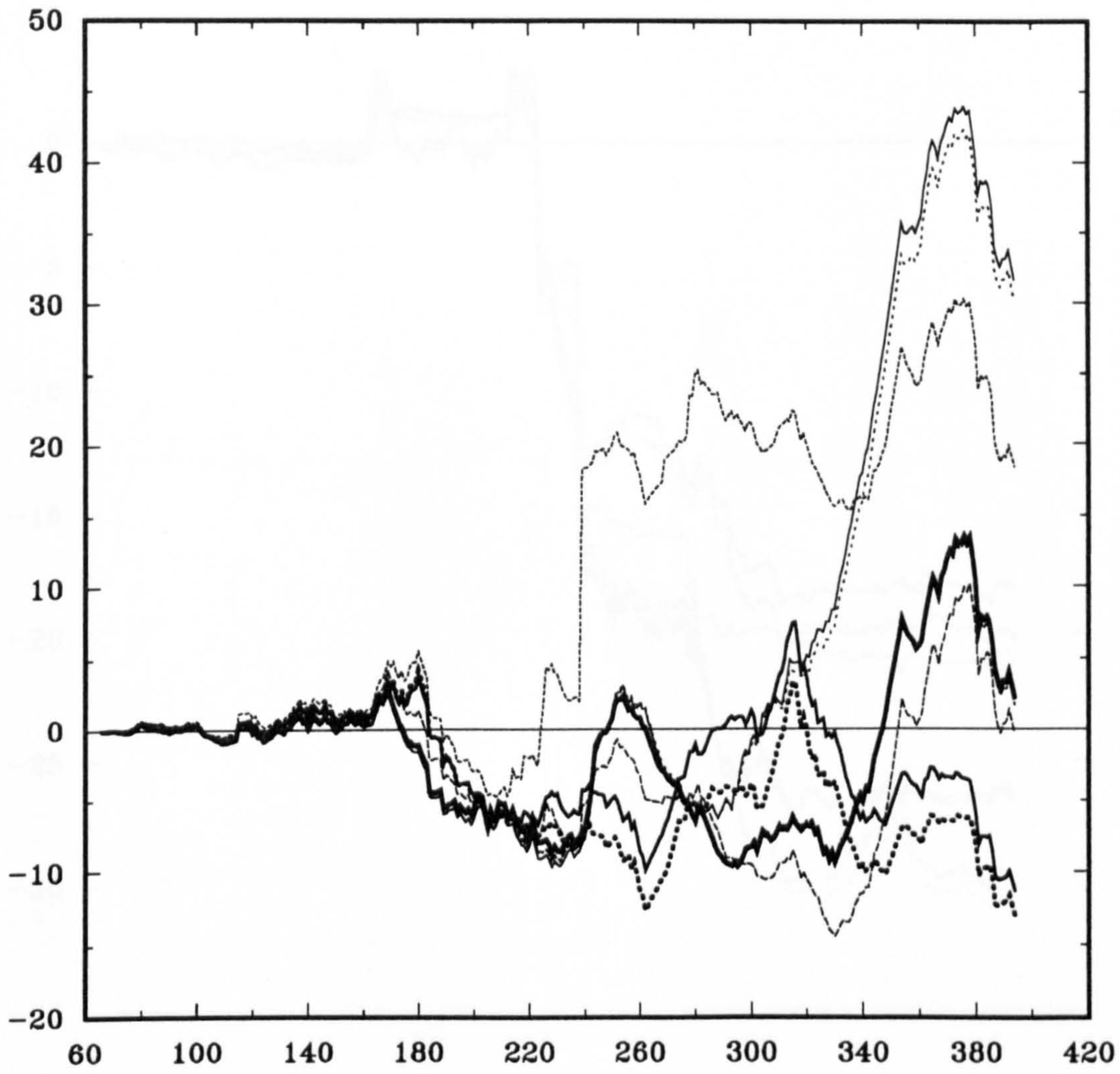


Figure B.2-25. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *CISI2*.

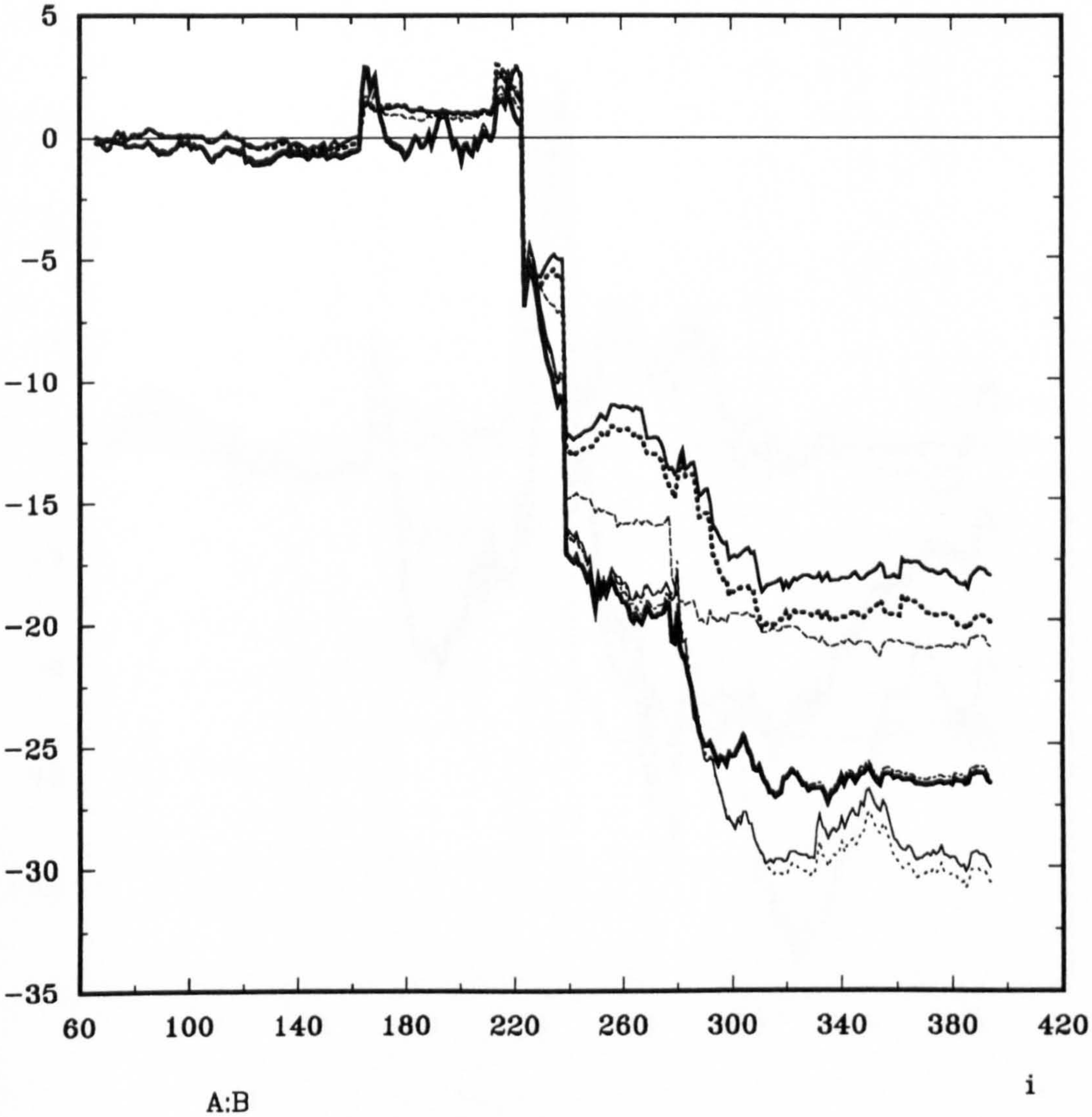


Figure B.2-26. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus *DUS20* for data set *CISI2*.

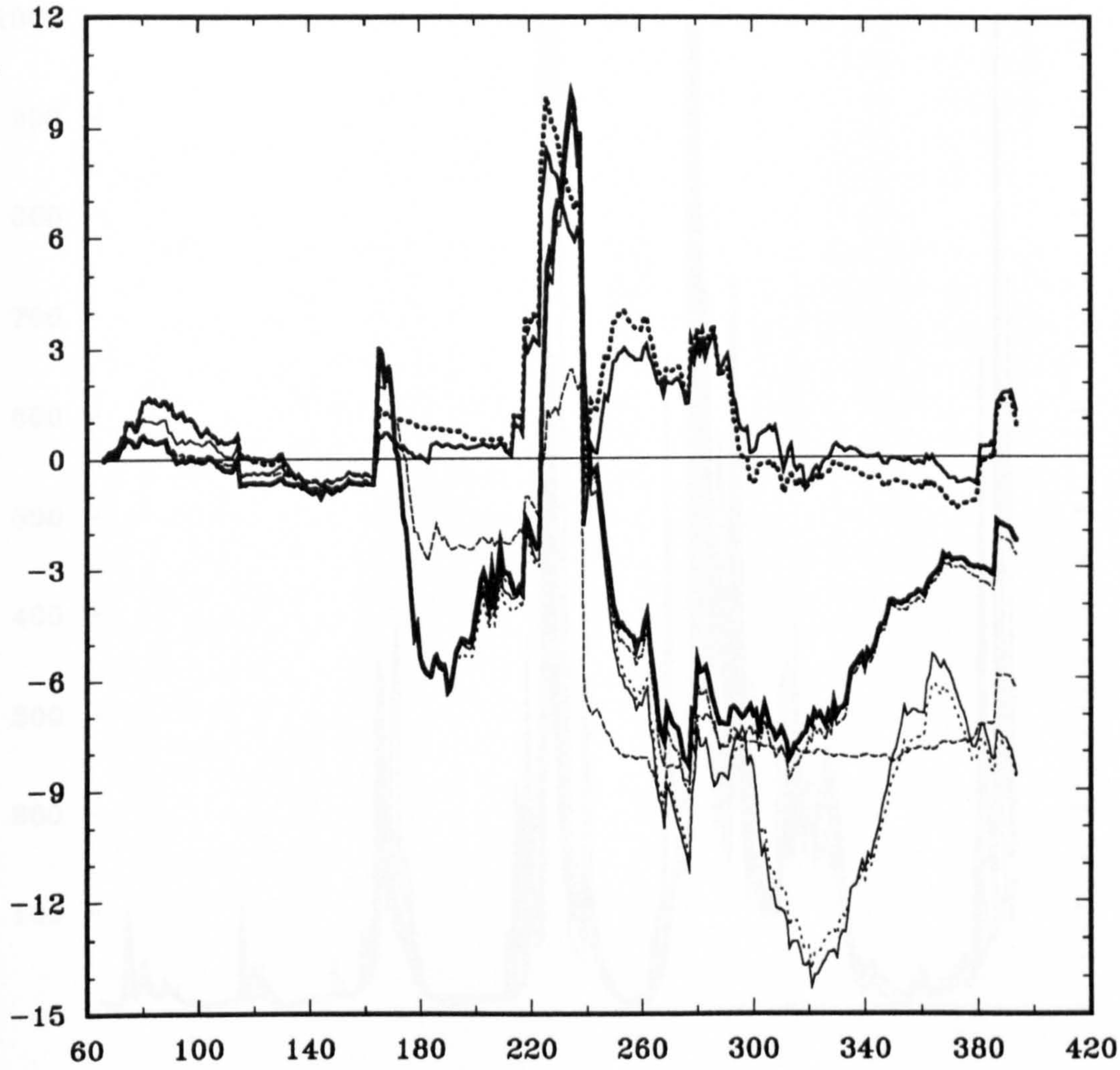


Figure B.2-27. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus *DUS50* for data set *CISI2*.

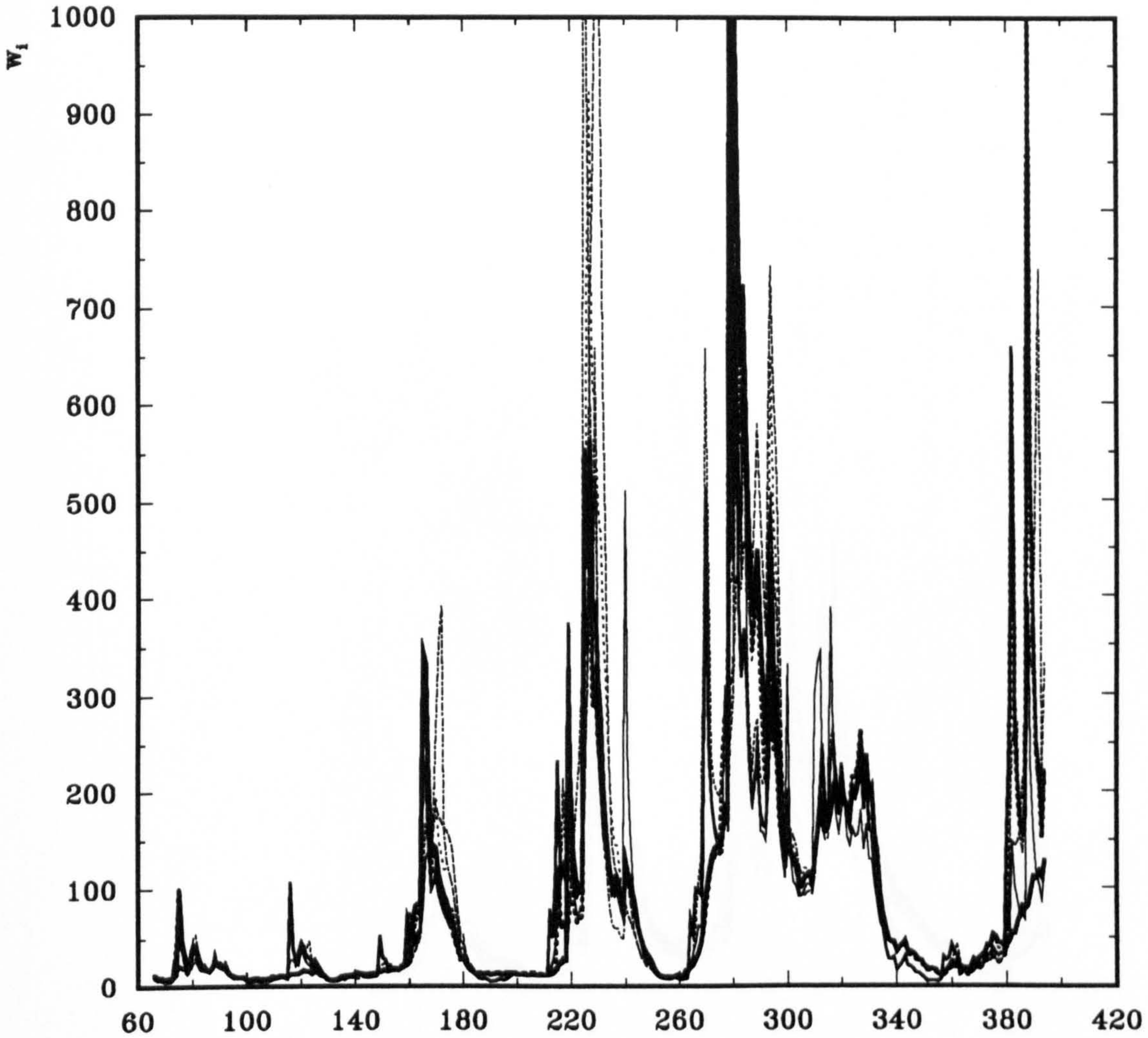


Figure B.2-28. Median predictions from the recalibrated (window = *20*) non-parametric predictors plotted against failure number for data set *CISI2*.

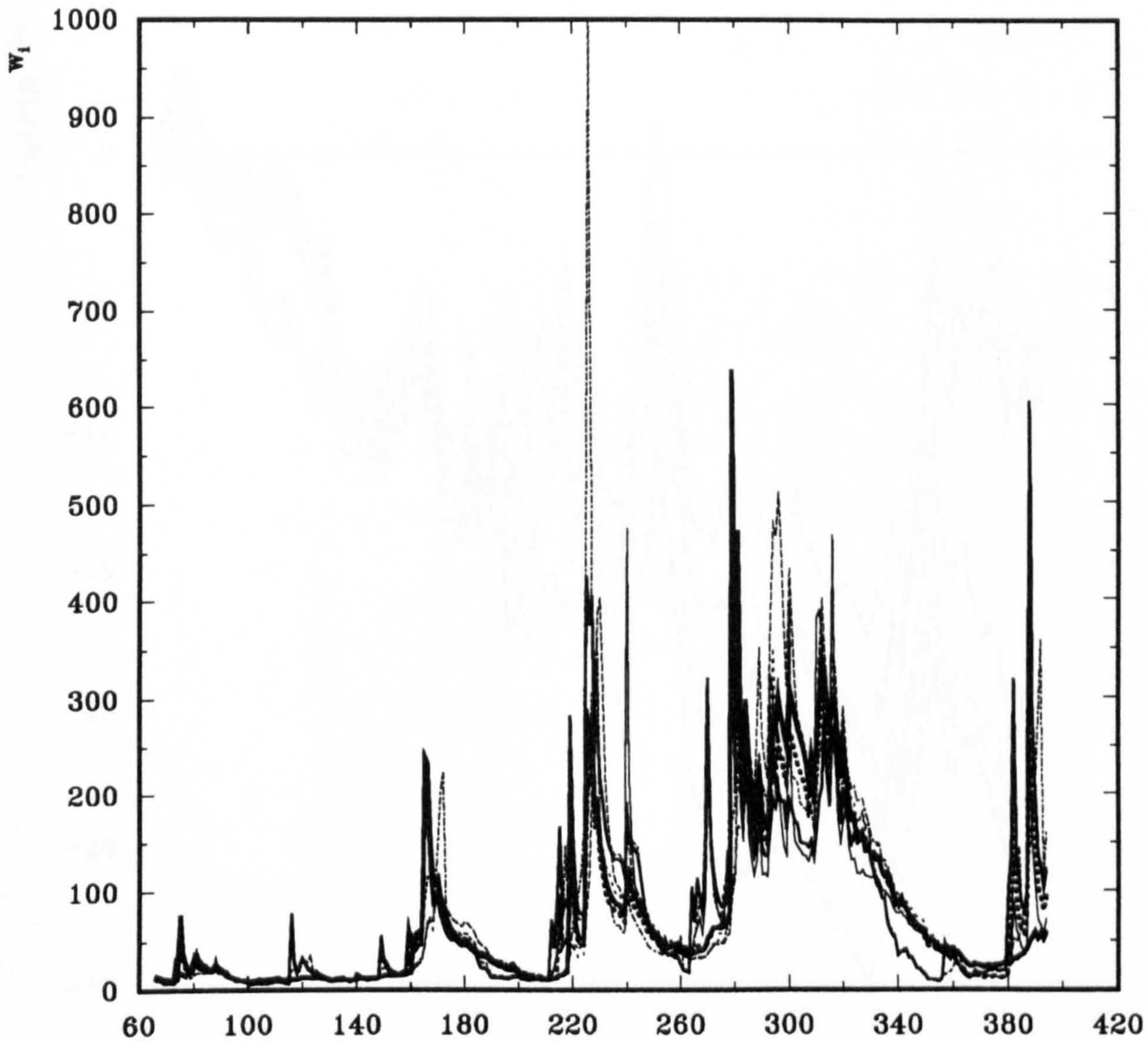


Figure B.2-29. Median predictions from the recalibrated (window = *50*) non-parametric predictors plotted against failure number for data set *CISI2*.

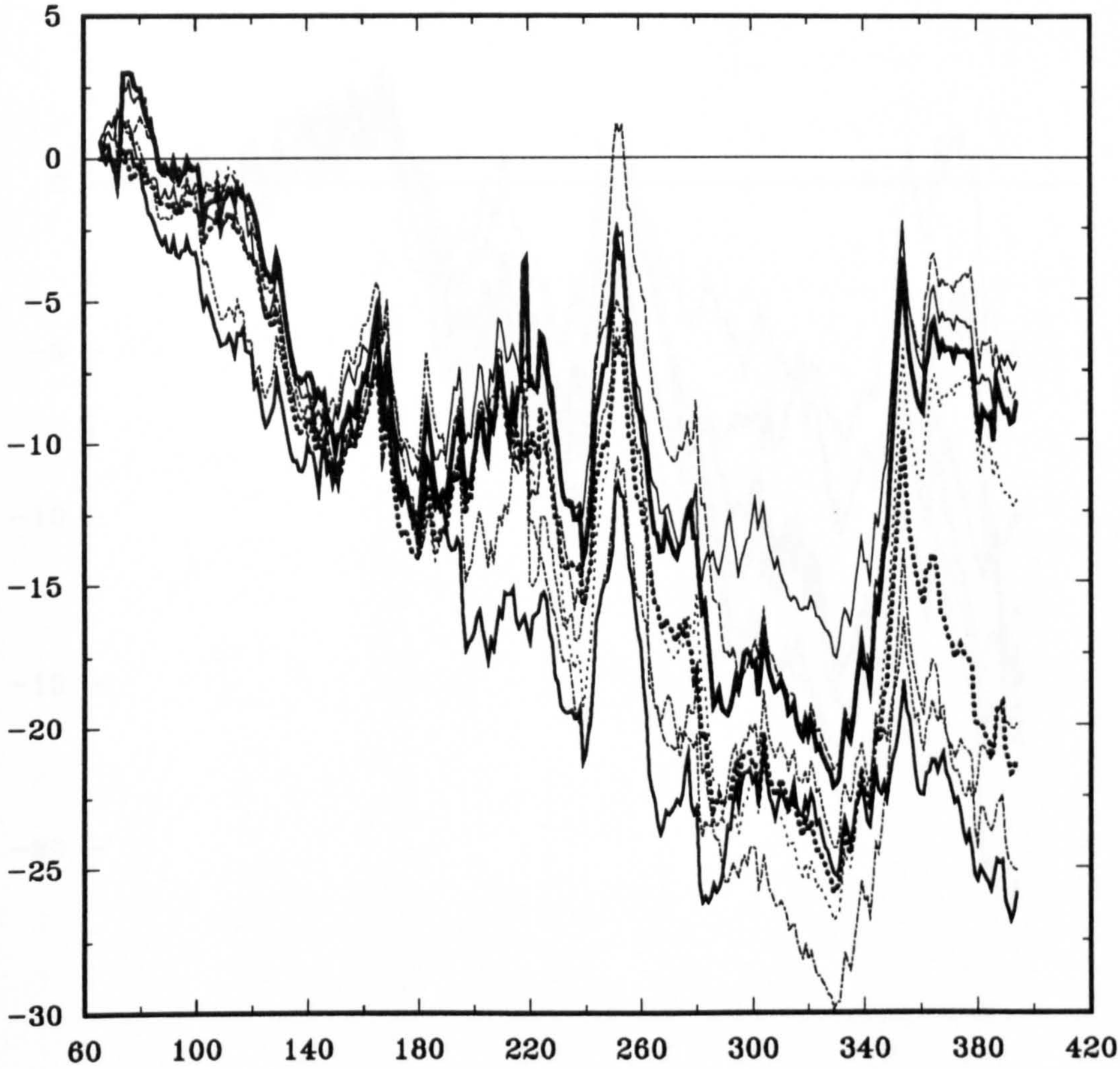


Figure B.2-30. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *CISI2*.

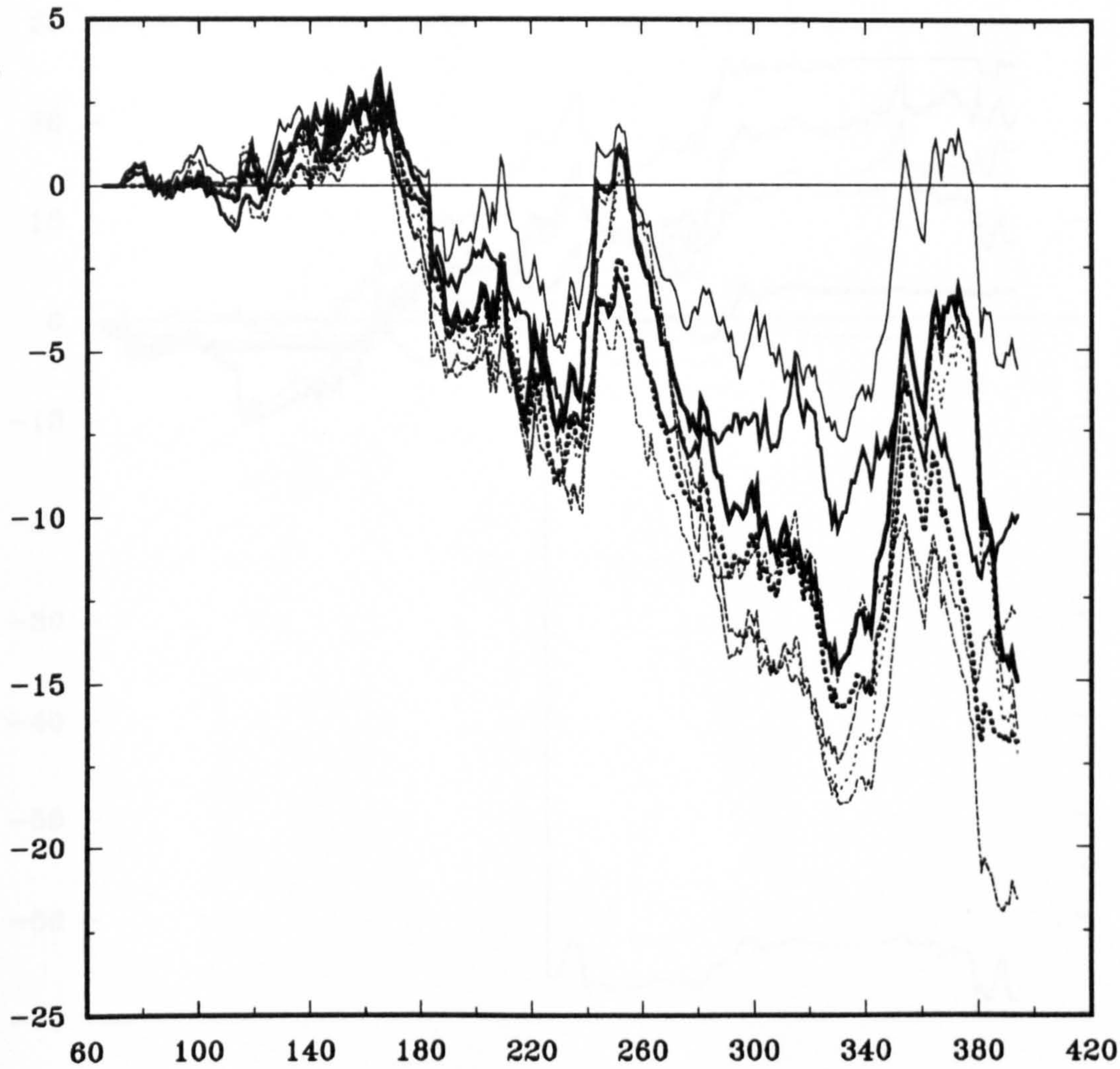


Figure B.2-31. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *CISI2*.

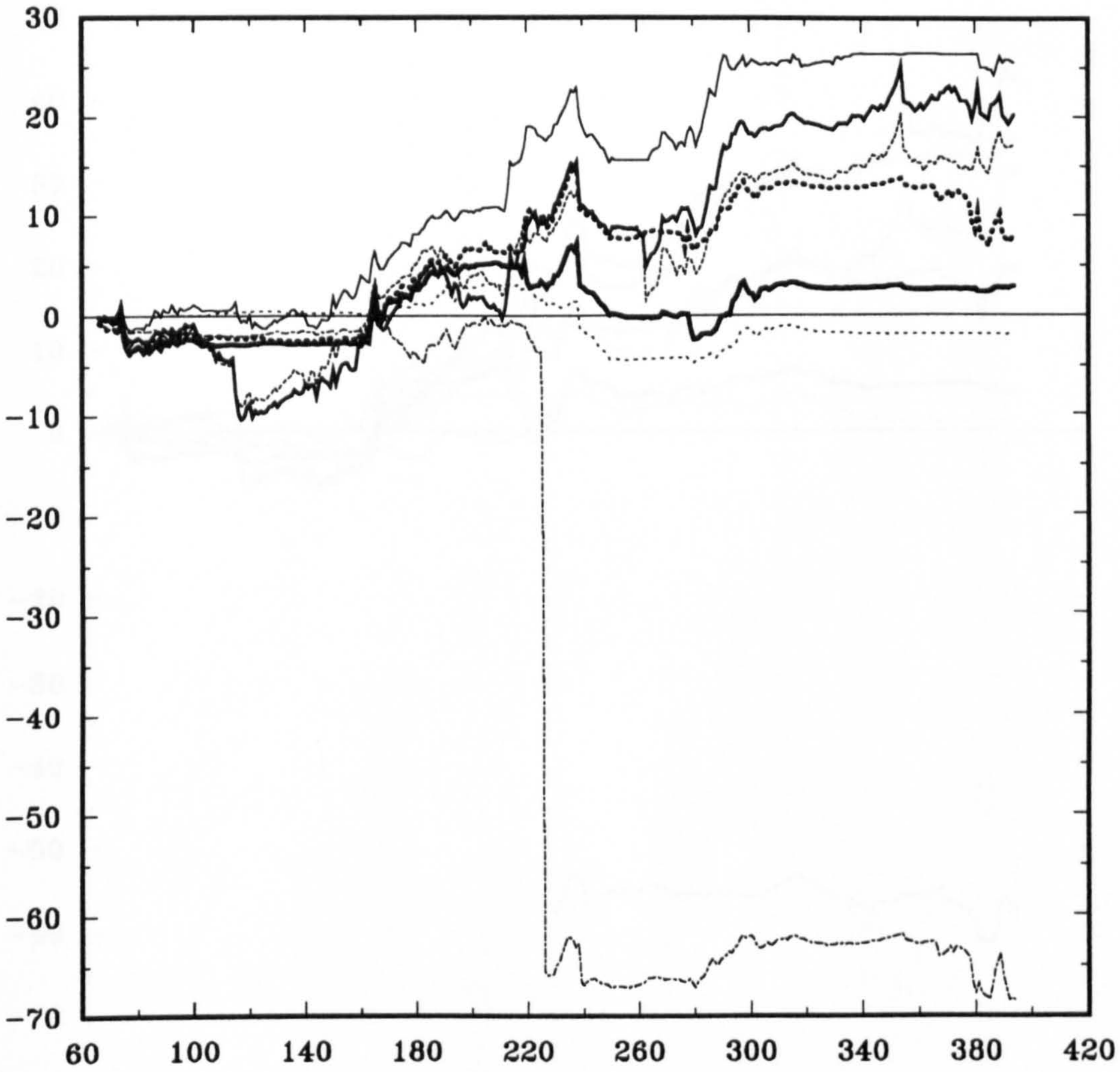


Figure B.2-32. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus *CM3S20* for data set *CISI2*.

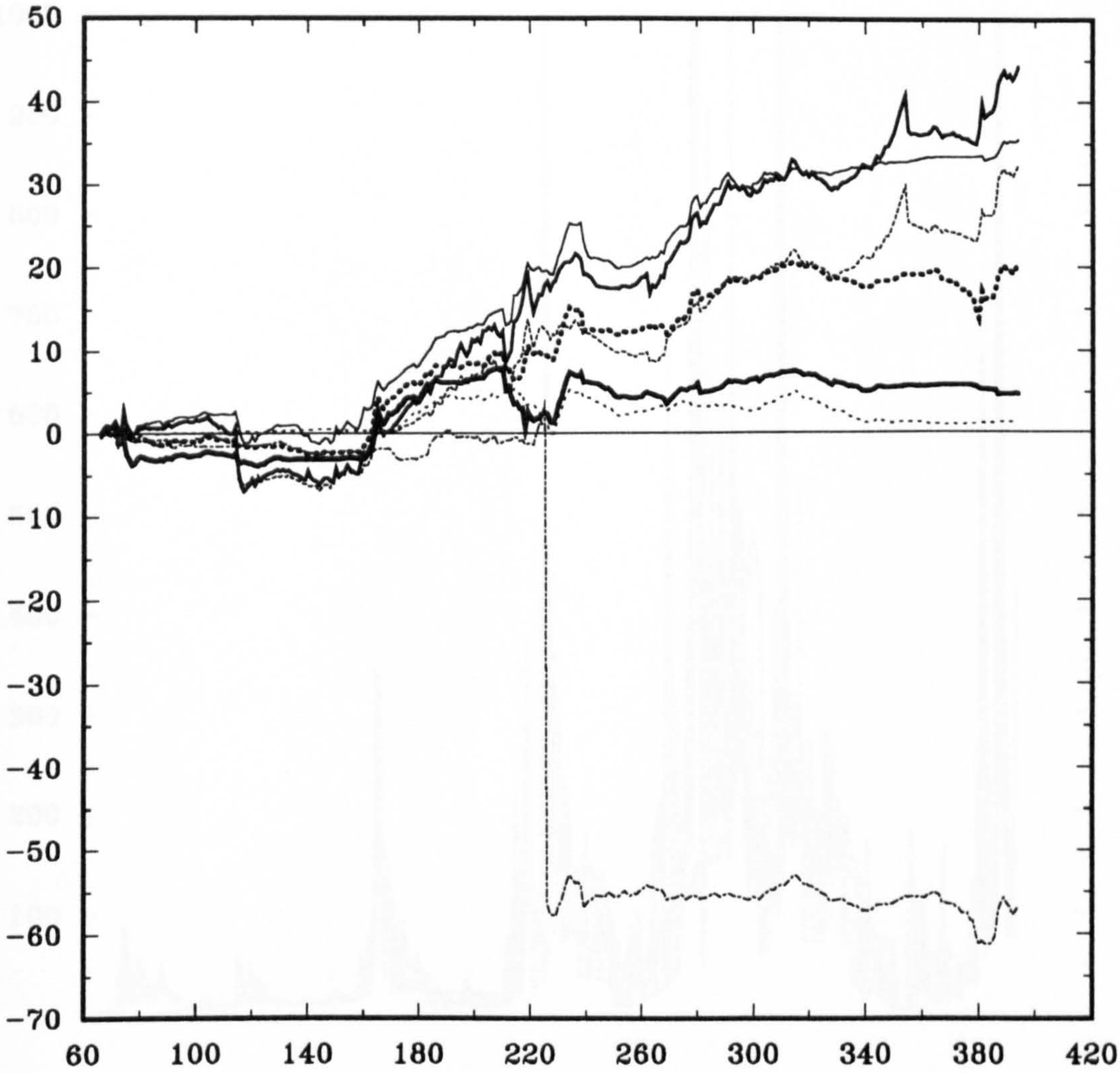


Figure B.2-33. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus *CM3S50* for data set *CISI2*.

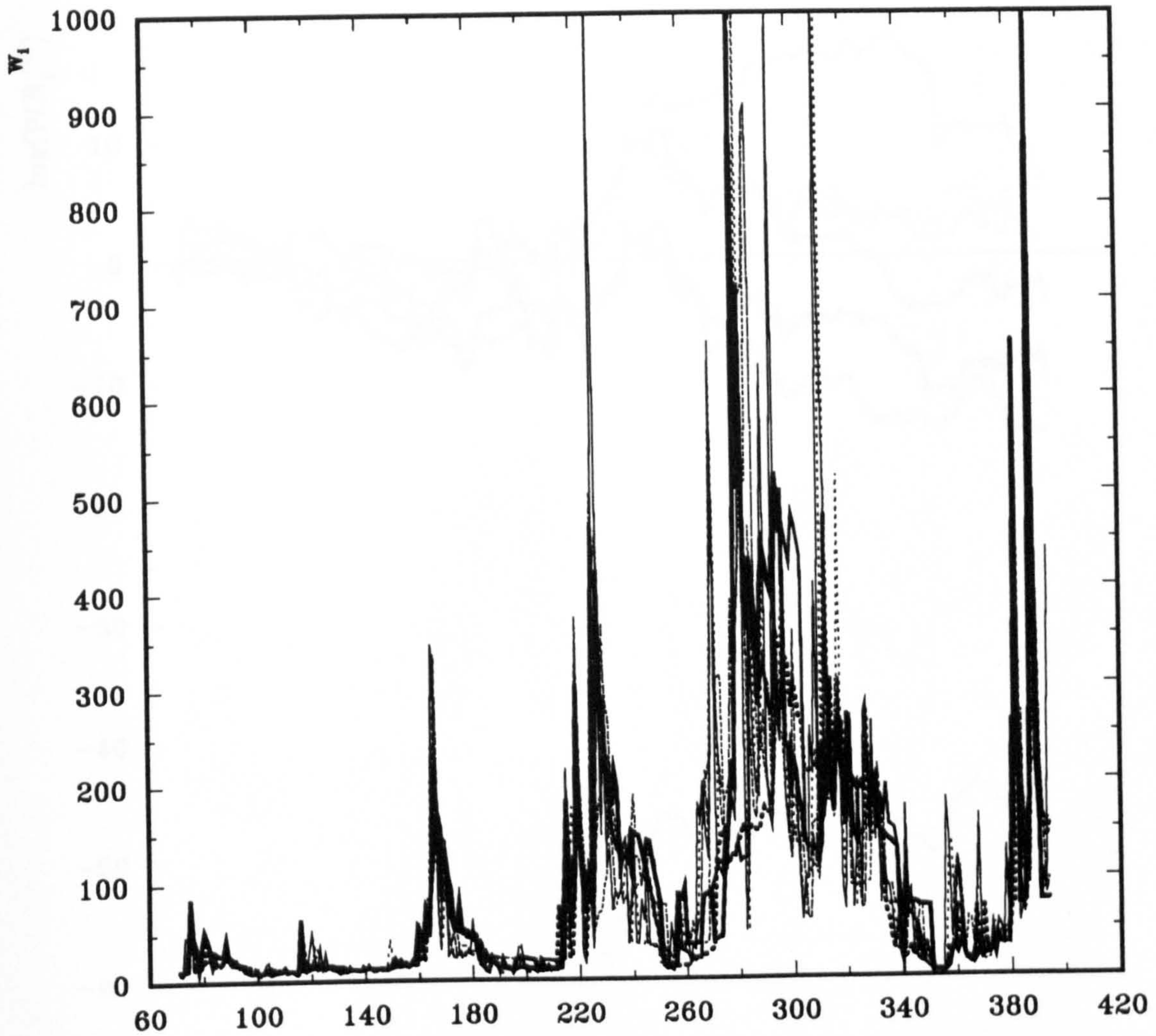


Figure B.2-34. Median predictions from the meta-predictors plotted against failure number for data set *CISI2*.

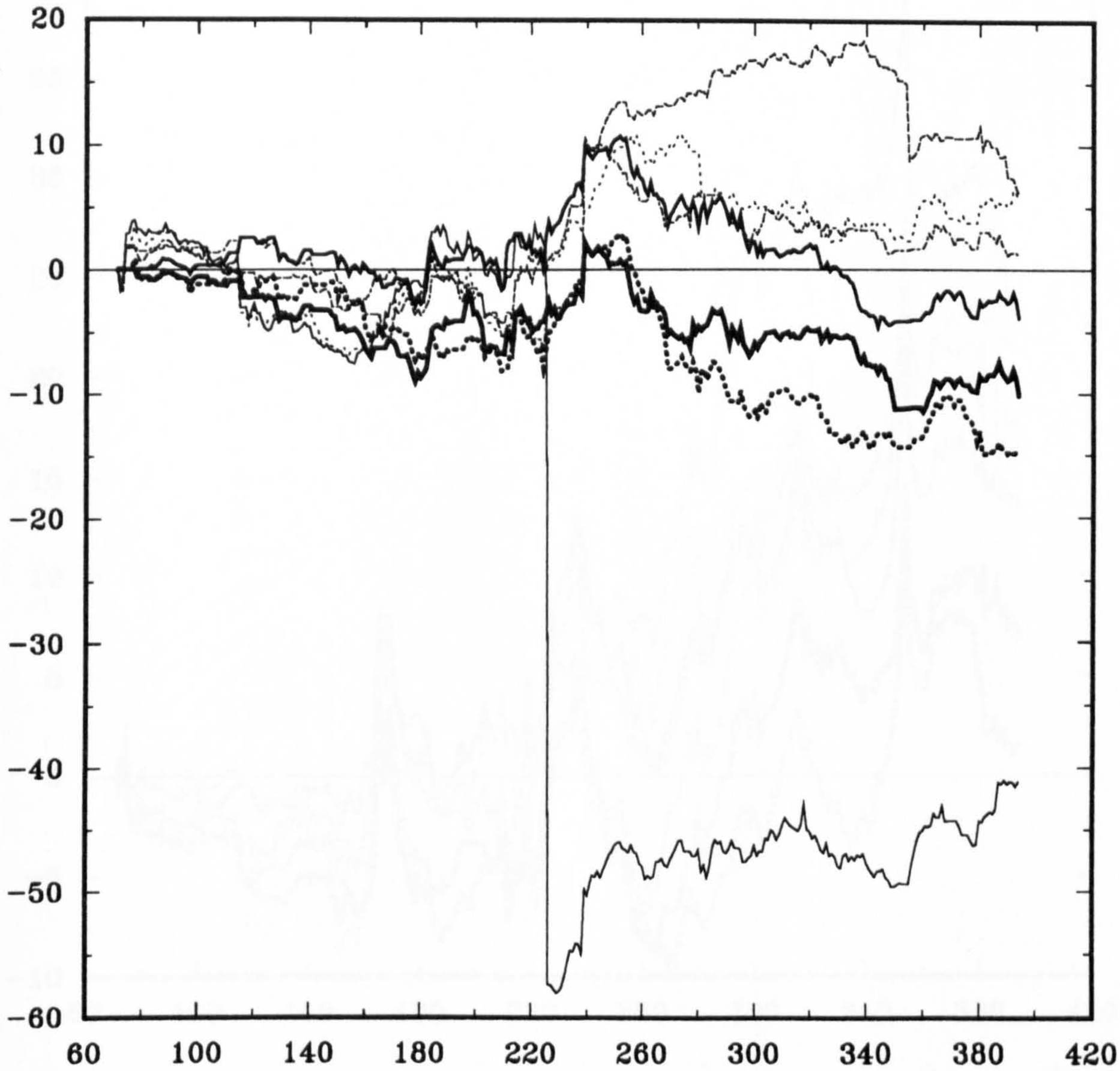


Figure B.2-35. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *CISI2*.

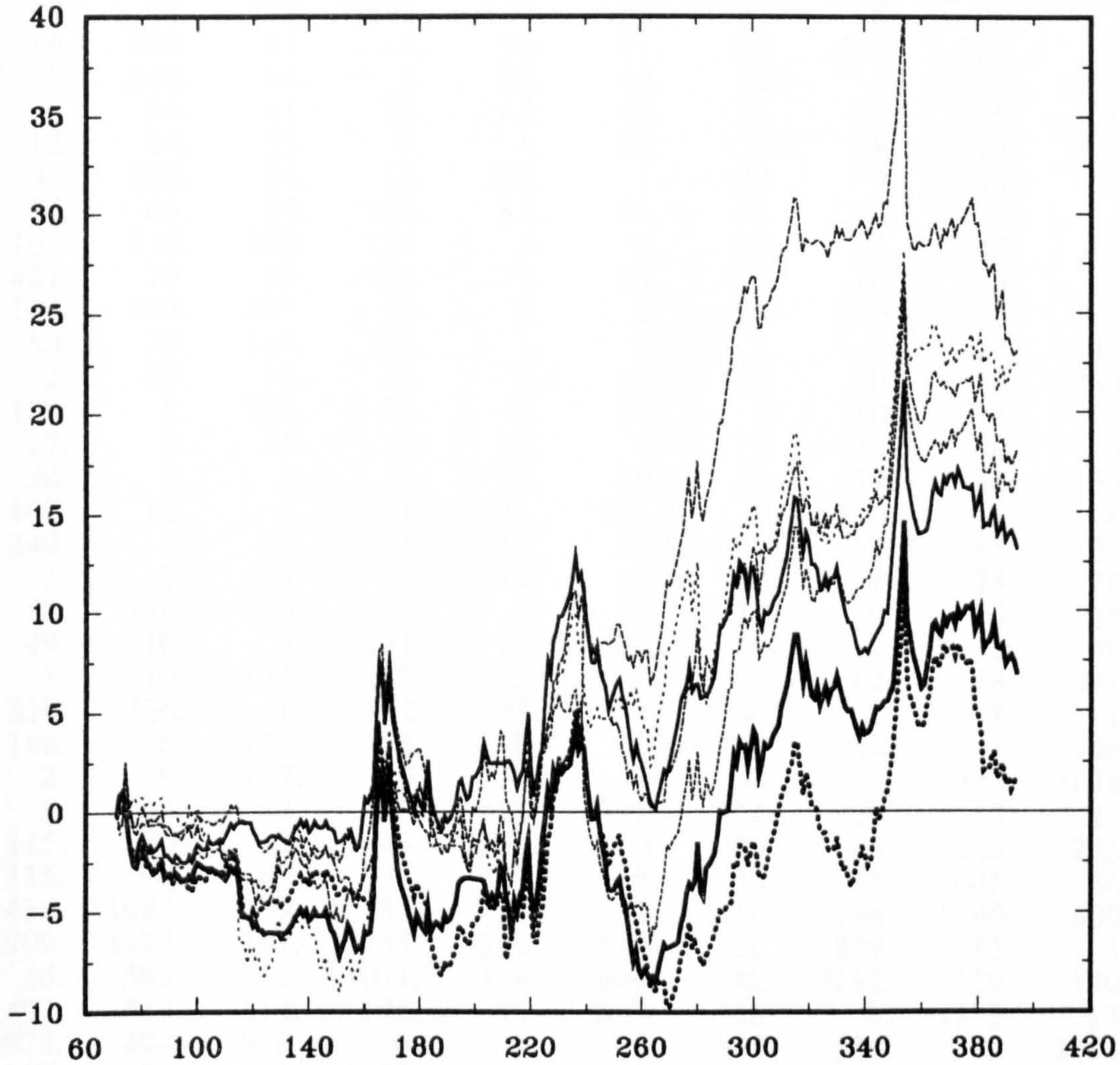


Figure B.2-36. *log(PLR)*-plots for the meta-predictors versus *KLS* for data set *CISI2*.

B.3 Data Set USCOM

90.	30.	575.	191.	160.	40.	23.	5.	90.	4.
16.	159.	15.	5.	90.	77.	68.	157.	137.	23.
1.	140.	16.	5.	30.	10.	12.	4.	10.	394.
6.	51.	11.	77.	43.	40.	55.	23.	6.	10.
12.	14.	33.	9.	4.	66.	0.5	18.	18.	531.
30.	129.	14.	15.	133.	1.	99.	9.	45.	71.
36.	64.	84.	486.	85.	54.	3.	15.	6.	8.
167.	110.	340.	124.	5.	9.	60.	34.	47.	167.
421.	19.	19.	183.	39.	54.	15.	16.	195.	88.
144.	273.	327.	60.	5.	2.	84.	210.	0.5	269.
50.	70.	117.	272.	1.	2.	5.	1.	17.	14.
2.	99.	19.	47.	0.5	61.	173.	20.	3.	111.
128.	5.	255.	28.	49.	74.	3.	10.	3.	8.
17.	3.	55.	7.	12.	6.	19.	178.	30.	4.
38.	7.	4.	4.	13.	10.	40.	57.	44.	37.
162.	12.	8.	1.	21.	131.	8.	156.	1.	6.
249.	3.	21.	3.	49.	0.5	244.	92.	146.	29.
3.	2.	158.	34.	24.	27.	92.	7.	33.	20.
16.	176.	399.	3.	9.	12.	18.	9.	75.	15.
49.	10.	9.	121.	25.	328.	30.	12.	52.	70.
3.	10.	114.	282.	212.	4.	5.	82.	38.	264.
316.	336.	1.	232.	138.	39.	160.	1.	7.	1.
146.	5.	124.	56.	18.	10.	267.	66.	1.	146.
2.	19.	117.	30.	158.	81.	28.	4.	313.	1016.
5.	63.	42.	159.	423.	312.	414.	128.	13.	47.
115.	280.	213.	240.	514.	90.	255.	35.	205.	225.
115.	98.	60.	179.	84.	5.	30.	35.	645.	66.
436.	1983.	779.	33.	72.	35.	116.	1126.	1940.	800.
909.	1473.	161.	254.	4230.	877.	326.	829.	83.	2.
26.	595.	352.	1071.	334.	999.	148.	2292.	319.	130.
1492.	437.	114.	175.	88.	553.	316.	1.	1172.	13.
1978.	494.	970.	6.	4.	55.	558.	36.	15.	2591.
17.	71.	84.	1108.	60.	19.	20.	112.	24.	722.
1535.	38.	78.	134.	2636.	355.	2815.	1637.	1.	3729.
644.	10.	20.	348.	330.	28.	56.	791.	65.	199.
212.	501.	53.	3.	8361.	366.	4210.	2697.	59.	
108.	2707.	233.	415.	1736.	1090.	78.	33.	1106.	2895.
7590.	1746.	818.	1638.	43.	189.	224.	30.	2879.	2075.
646.	55.	1347.	7606.	81.	134.	967.	335.	3.	3.
62.	1.	44.	3930.	2473.	121.	2131.	3101.	2494.	6833.
76.	4457.	6912.	4396.	4207.	212.	4536.	4710.	2398.	1859.
6215.	323.	1953.	2470.						

Table B.3-1. Data set *USCOM*; 414 inter-failure times (read from left to right).

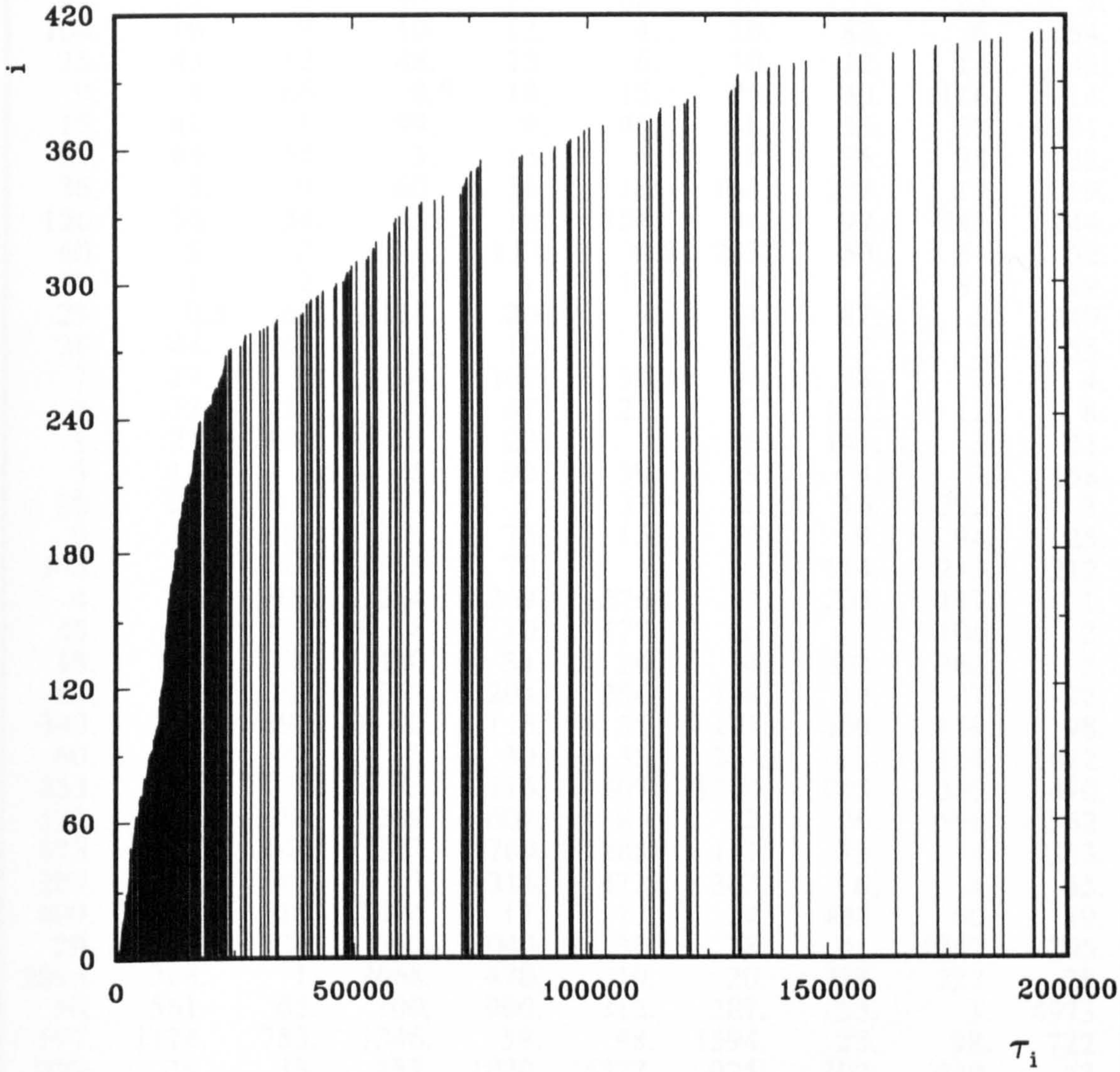


Figure B.3-2. Cumulative number of failures plotted against total elapsed time for data set *USCOM*.

B.4 Data Set USBAR

60.	30.	540.	67.	40.	23.	5.	53.	4.	16.
94.	15.	5.	90.	77.	68.	15.	137.	23.	1.
104.	16.	9.	10.	12.	4.	10.	82.	6.	54.
25.	43.	12.	48.	23.	6.	10.	12.	14.	33.
9.	4.	66.	0.5	18.	15.	75.	30.	116.	14.
15.	41.	1.	99.	9.	45.	68.	36.	50.	81.
89.	85.	54.	3.	15.	6.	8.	36.	98.	32.
36.	5.	9.	60.	34.	16.	164.	123.	19.	19.
126.	36.	54.	15.	16.	154.	84.	92.	247.	244.
60.	5.	2.	5.	130.	0.5	233.	50.	54.	52.
57.	1.	2.	5.	1.	17.	14.	2.	87.	19.
29.	0.5	61.	118.	20.	3.	11.	87.	5.	249.
28.	44.	31.	3.	10.	3.	8.	17.	3.	55.
7.	12.	6.	4.	169.	30.	4.	38.	7.	4.
4.	13.	10.	40.	57.	22.	37.	127.	12.	8.
1.	21.	104.	8.	23.	1.	6.	141.	3.	21.
3.	18.	0.5	75.	92.	39.	29.	3.	2.	158.
30.	24.	5.	92.	7.	33.	20.	16.	292.	3.
9.	12.	18.	9.	75.	15.	46.	9.	94.	25.
175.	5.	12.	18.	70.	3.	10.	114.	213.	212.
4.	5.	106.	264.	269.	276.	1.	203.	117.	1.
45.	5.	110.	18.	10.	179.	66.	1.	106.	2.
19.	117.	30.	130.	31.	28.	4.	302.	362.	5.
63.	42.	86.	258.	294.	256.	118.	13.	47.	92.
343.	128.	392.	90.	116.	35.	171.	139.	110.	98.
60.	90.	82.	5.	30.	35.	231.	62.	158.	1622.
353.	33.	70.	35.	116.	809.	1710.	745.	350.	470.
122.	244.	2384.	249.	607.	83.	2.	26.	586.	352.
673.	330.	649.	123.	1789.	1288.	111.	75.	74.	333.
287.	1.	881.	13.	1314.	472.	363.	6.	4.	55.
409.	36.	15.	1404.	17.	71.	34.	434.	60.	19.
20.	79.	24.	540.	1040.	38.	78.	41.	1757.	205.
2095.	788.	1.	2668.	470.	10.	20.	338.	222.	28.
56.	561.	65.	100.	900.	212.	287.	53.	3.	4973.
197.	1174.	783.	1346.	59.	98.	1594.	25.	98.	722.
228.	78.	33.	453.	1020.	4327.	925.	302.	649.	43.
185.	157.	30.	1771.	1088.	556.	55.	4892.	81.	61.
476.	63.	3.	3.	62.	1.	44.	1236.	1406.	109.
1471.	1797.	1749.	2096.	76.	2167.	2059.	2177.	1893.	198.
3326.	3100.	586.	2686.	124.	229.	1008.			

Table B.4-1. Data set *USBAR*; 397 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	F	F	F	B	A	B	A	C	A	E	A
GO	F	F	F	F	B	A	B	A	C	A	E	A
MO	F	F	D	D	A	A	A	A	A	A	A	A
DU	F	F	F	D	E	A	E	A	D	A	D	A
LM	F	F	F	E	A	A	A	A	A	A	A	A
LNHPP	F	F	F	D	A	A	A	A	A	A	A	A
LV	F	F	F	D	A	A	A	A	A	A	A	A
KL	F	F	D	A	A	A	A	A	A	A	A	A
CM1	A	F	A	C	A	A	A	A	A	A	A	A
CM2	C	F	A	B	A	A	A	A	A	A	A	A
CM3	C	F	B	B	A	A	A	A	B	A	B	A
OTY20	A	F	A	C	A	A	A	A	A	A	A	A
OTY50	B	F	B	B	A	A	A	A	B	A	B	A
OTL	C	F	A	A	A	A	A	A	A	A	A	A
OTL20	A	F	A	D	A	A	A	A	A	A	A	A
OTL50	B	F	B	A	A	A	A	A	A	A	A	A

Table B.4-2.1. *u*- and *y*-plot significance levels for data set *USBAR* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
B	B	B	B	C	C	B	B	A	A	A	A	A	A	A	A

Table B.4-2.2. *u*- and *y*-plot significance levels for data set *USBAR* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

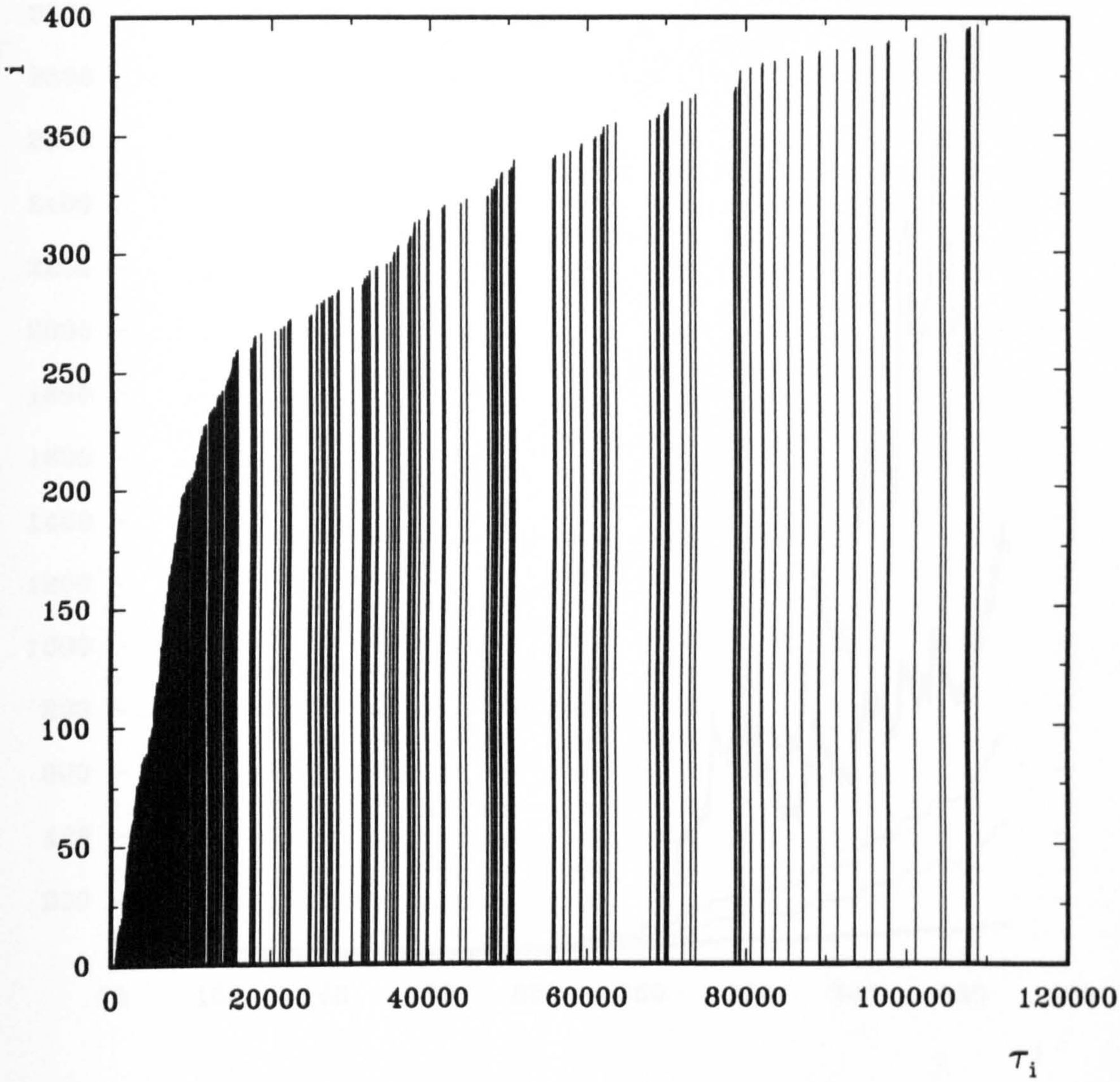


Figure B.4-3. Cumulative number of failures plotted against total elapsed time for data set *USBAR*.

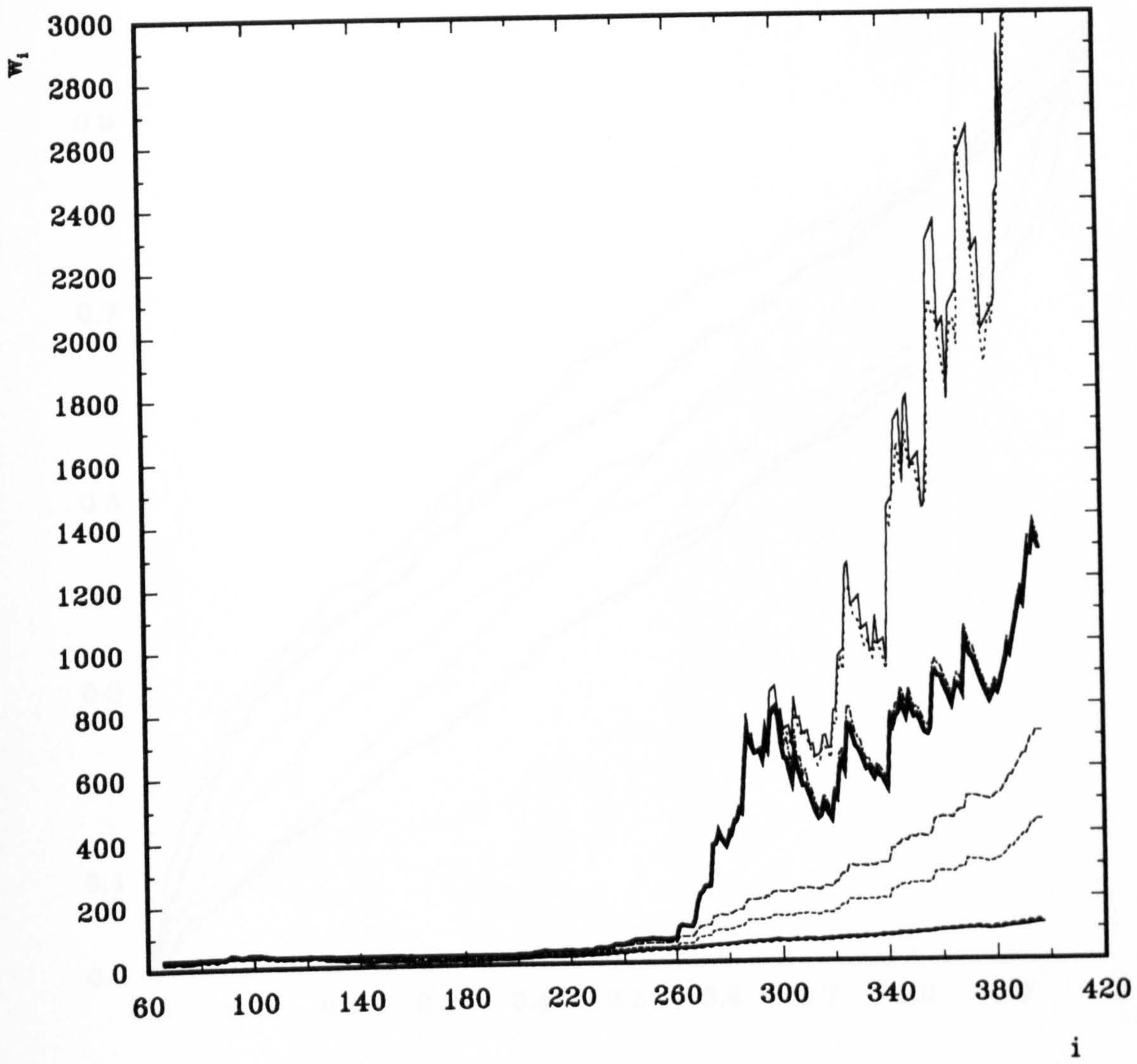


Figure B.4-4. Median predictions from the raw parametric predictors plotted against failure number for data set *USBAR*.

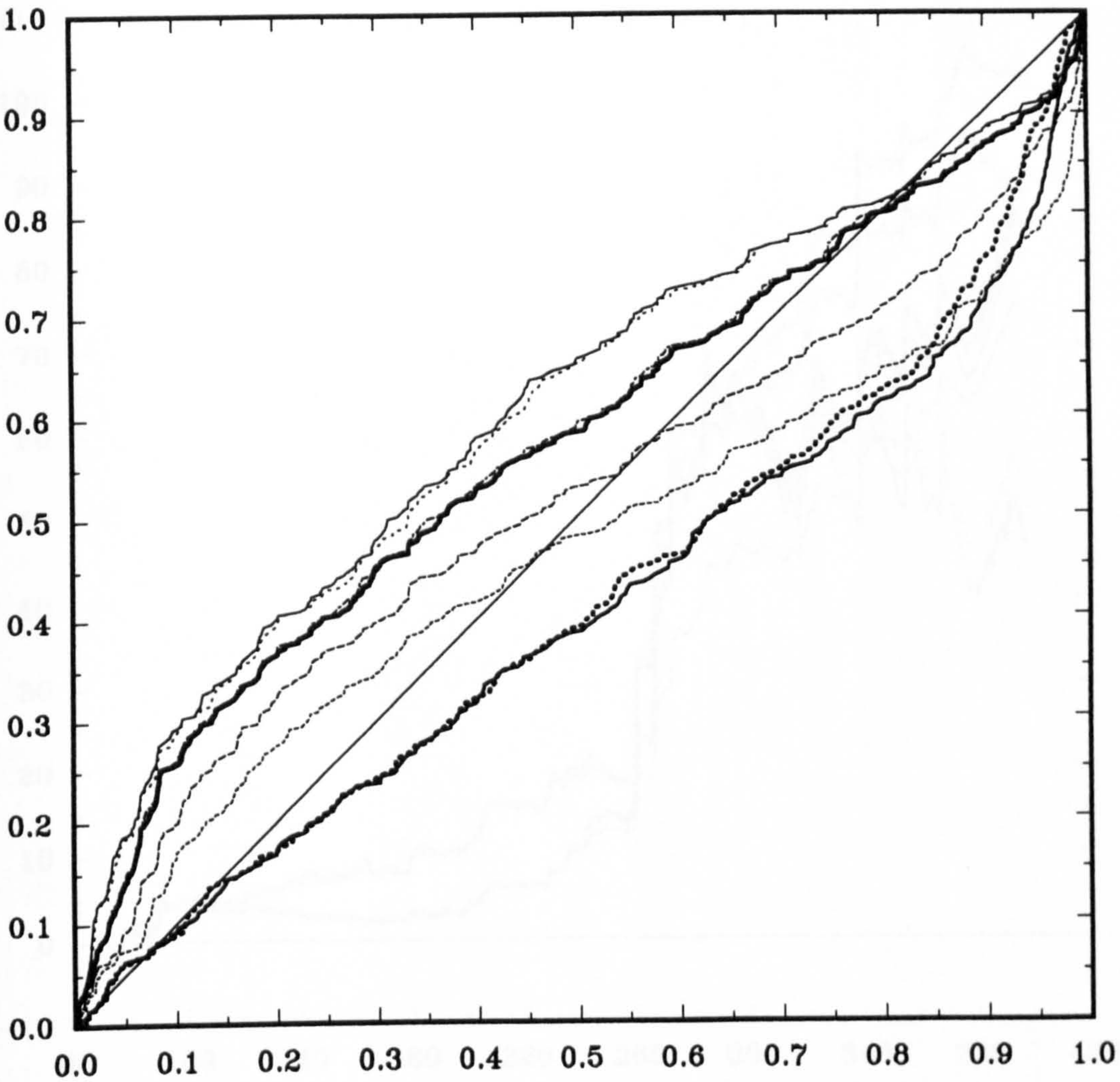


Figure B.4-5. *u*-plots for the raw parametric predictors for data set *USBAR*.

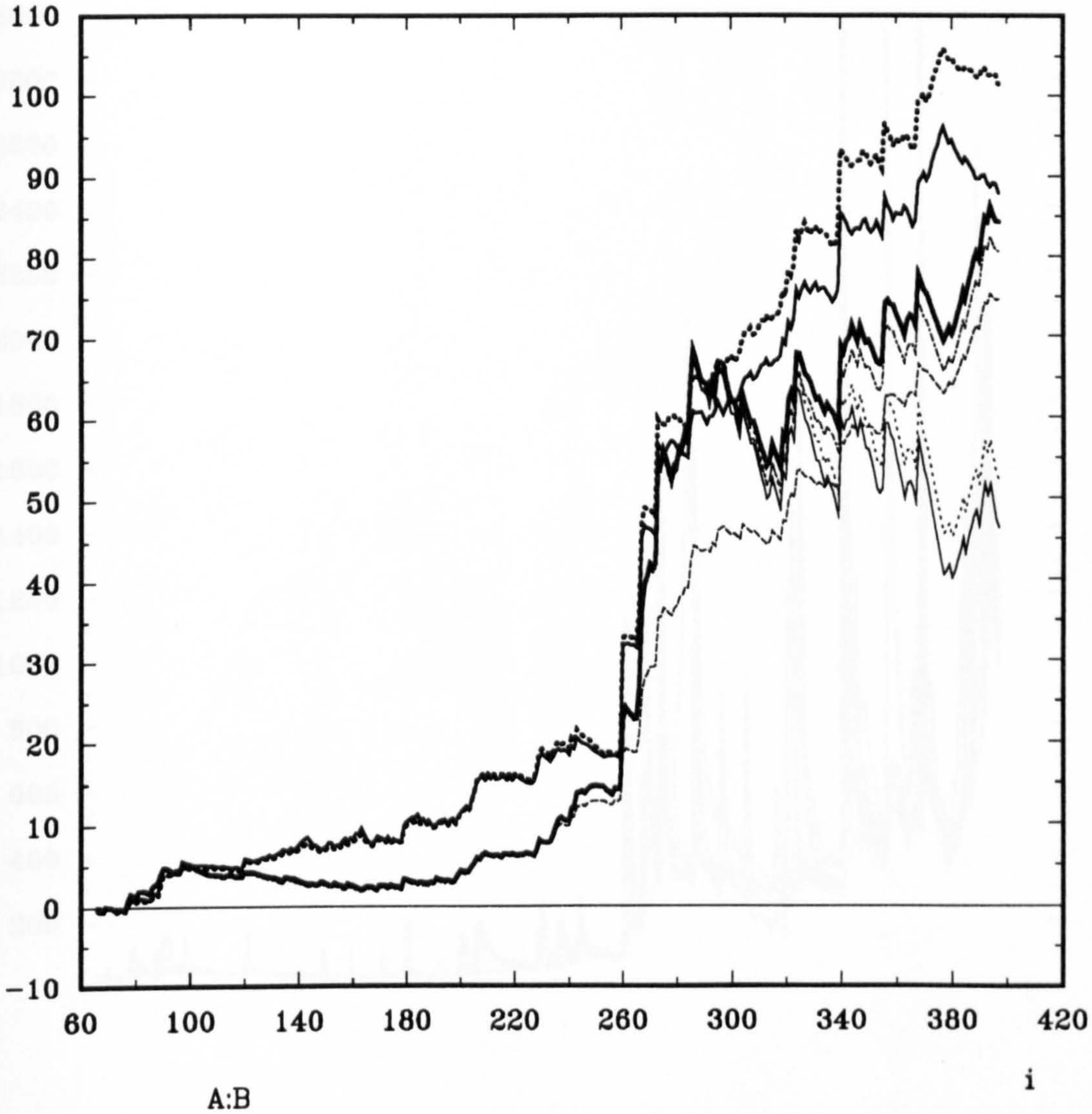


Figure B.4-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *USBAR*.

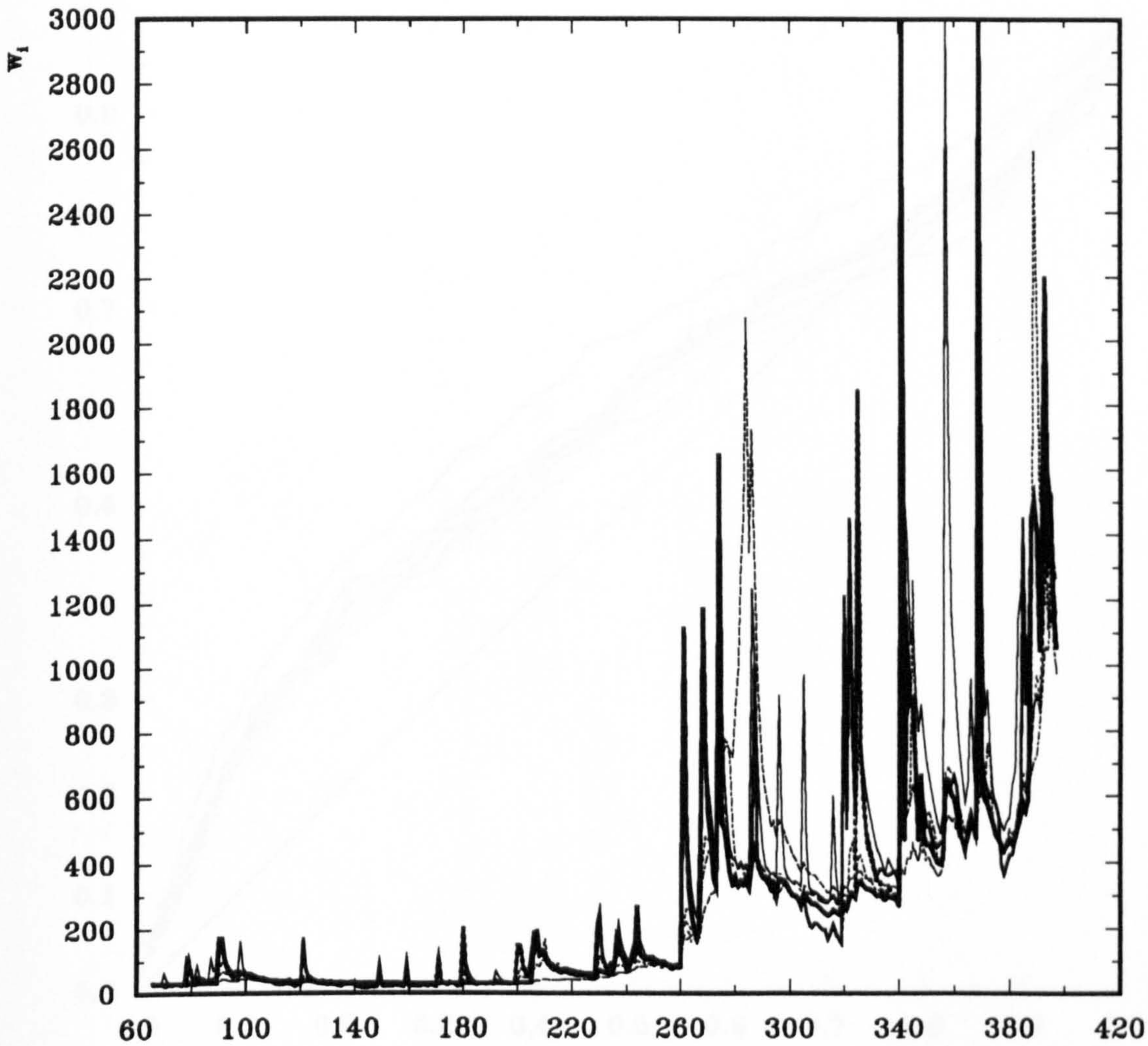


Figure B.4-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *USBAR*.

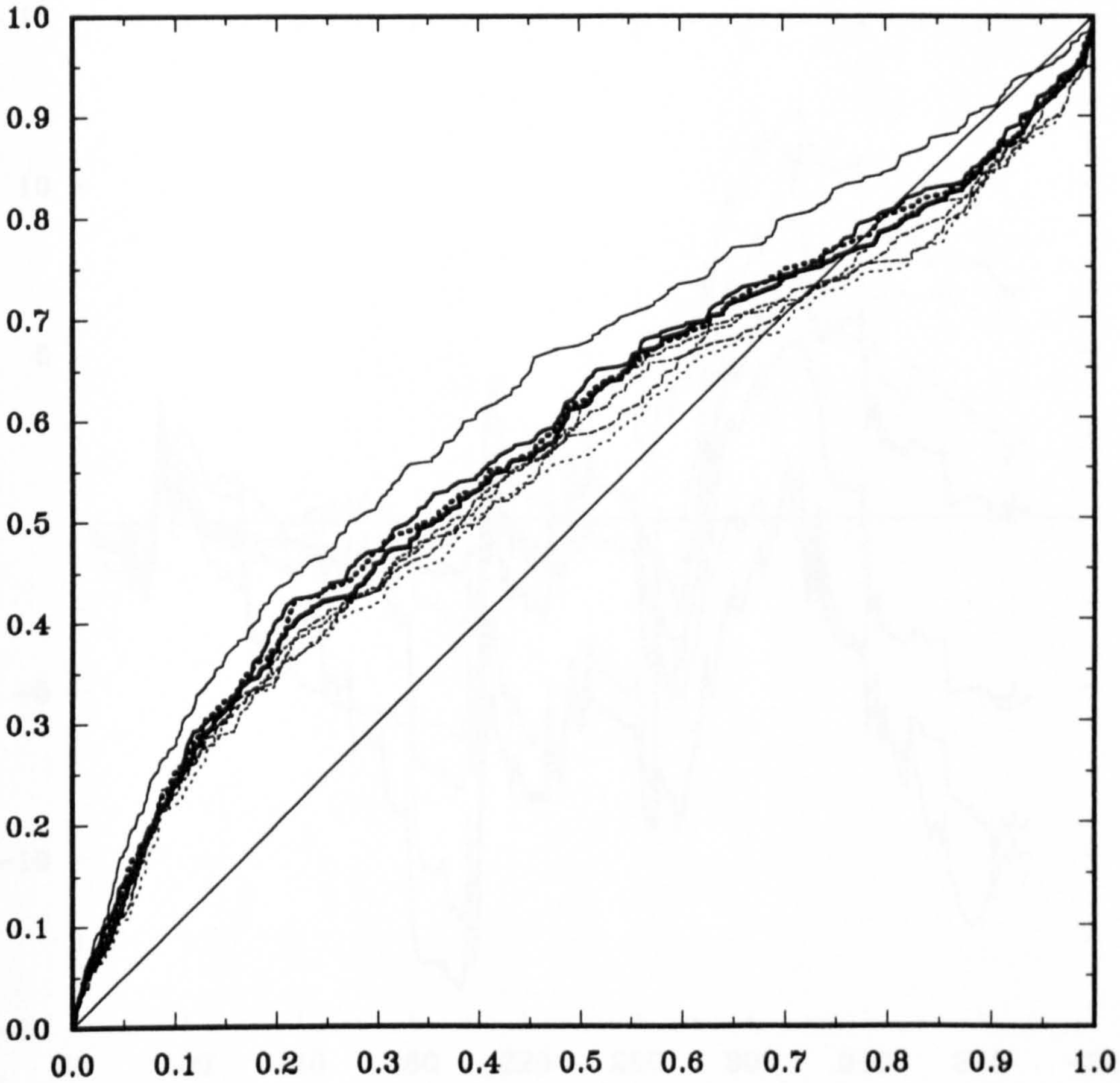


Figure B.4-8. *u*-plots for the raw non-parametric predictors for data set *USBAR*.

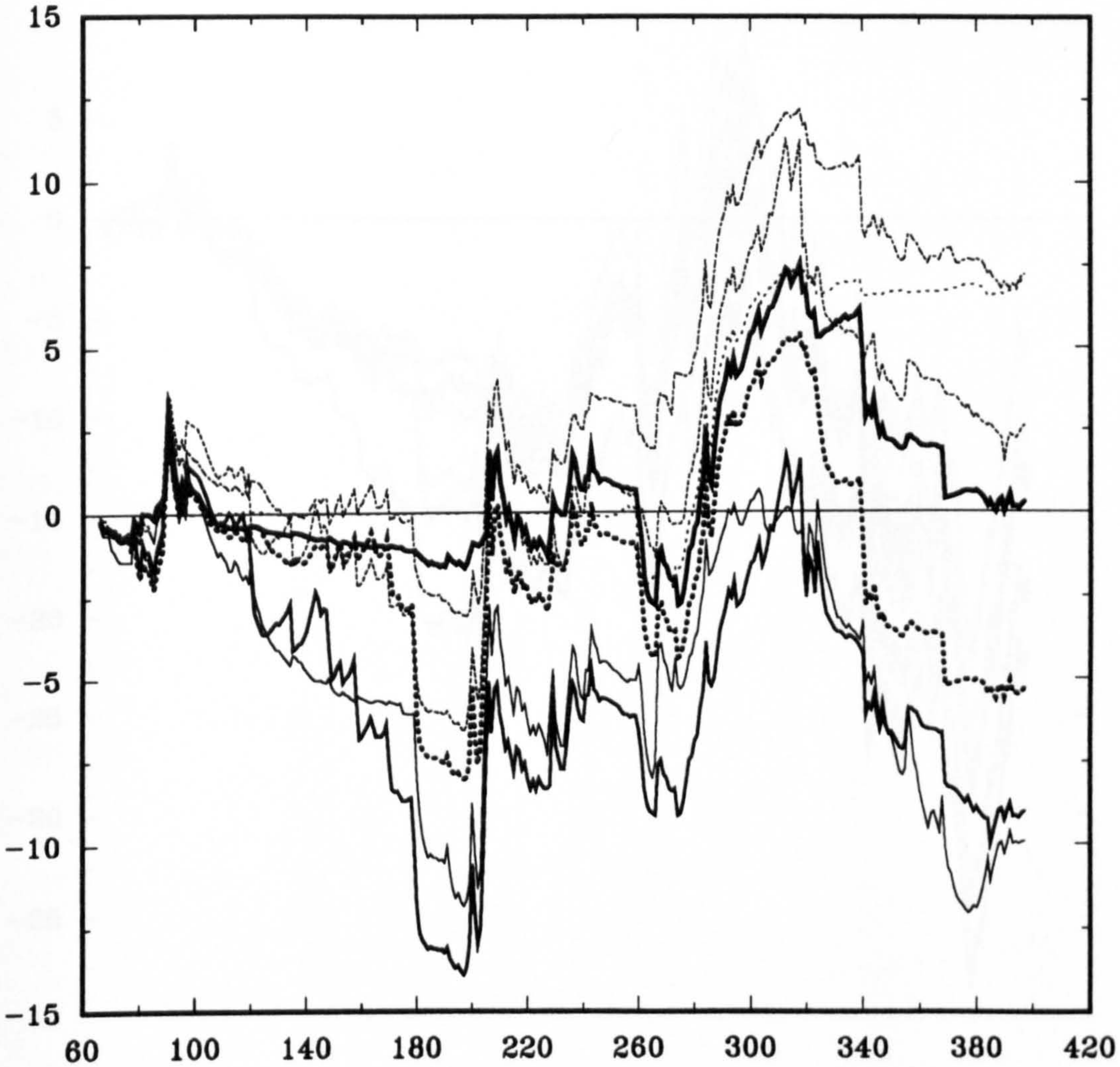


Figure B.4-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *USBAR*.

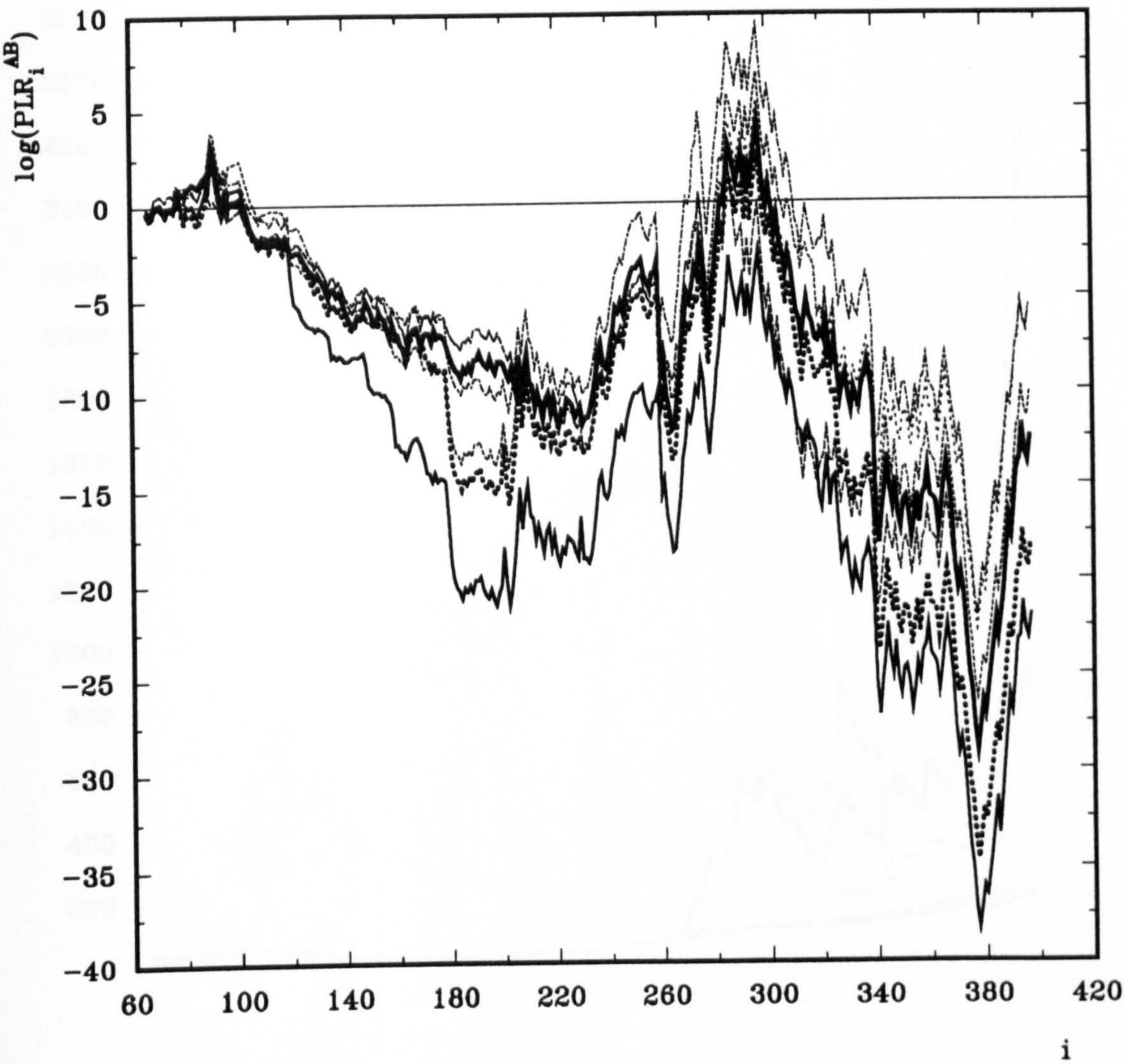


Figure B.4-10. *log(PLR)*-plots for the raw non-parametric predictors versus *KL* for data set *USBAR*.

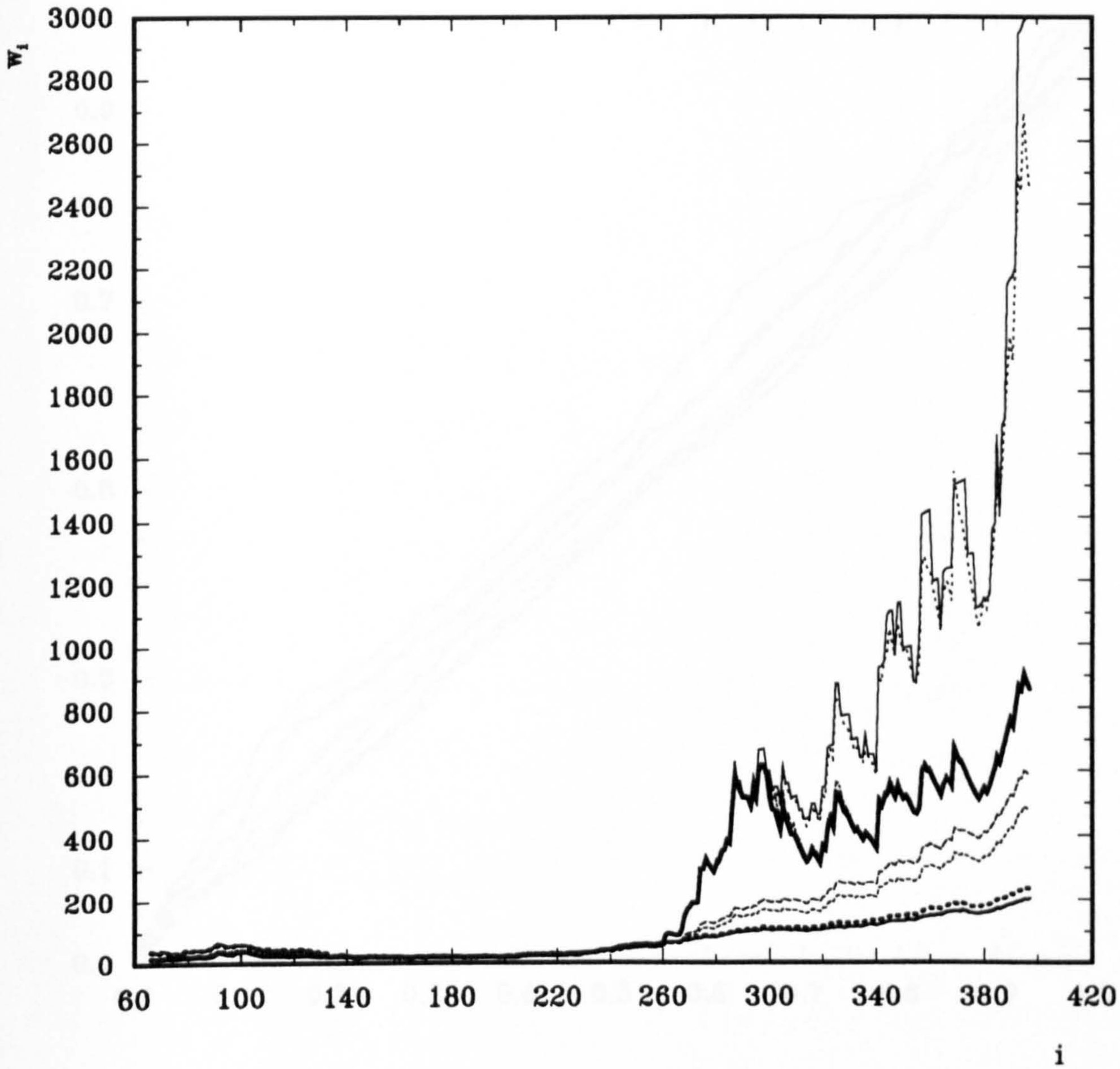


Figure B.4-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *USBAR*.

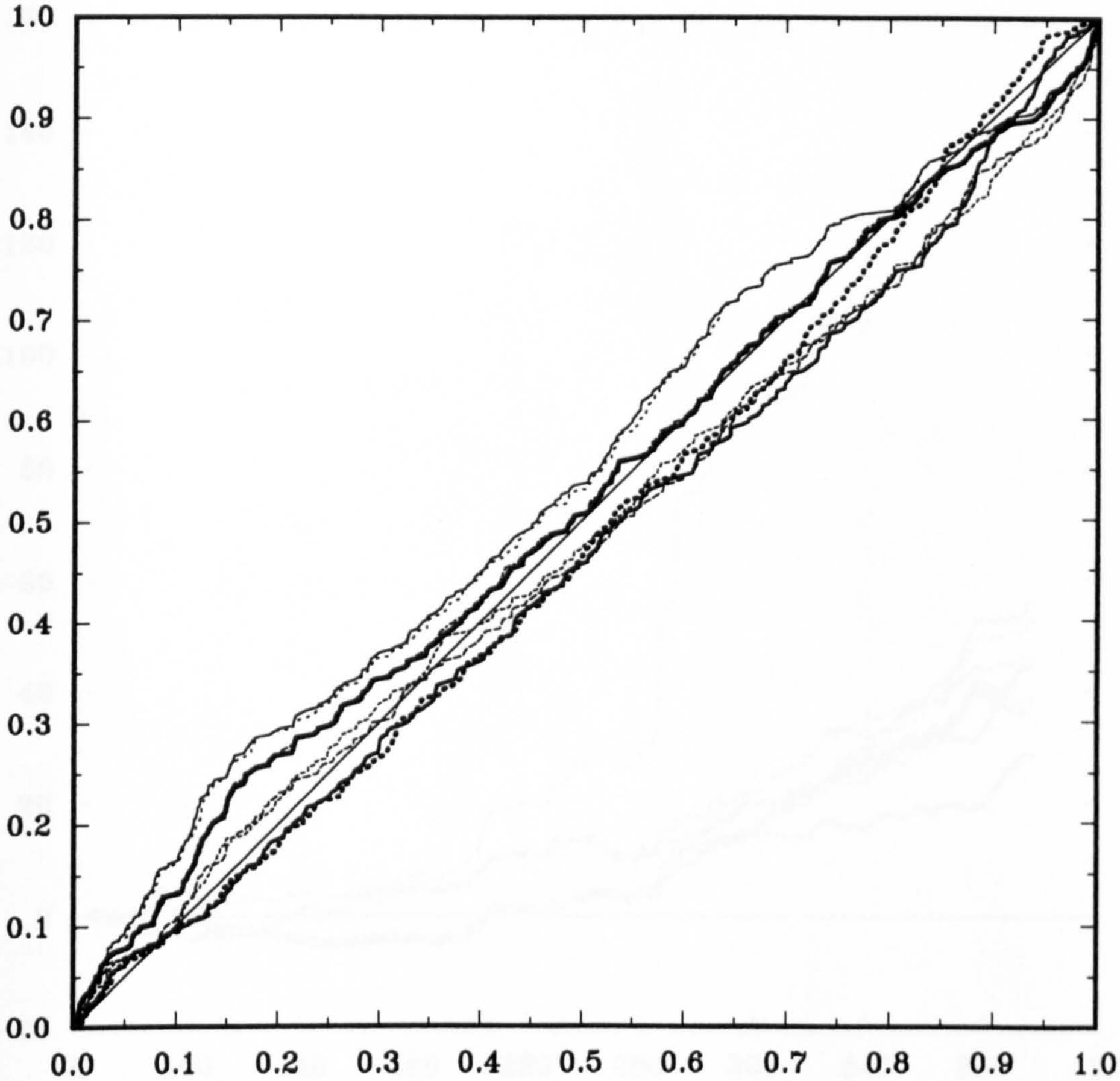


Figure B.4-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *USBAR*.

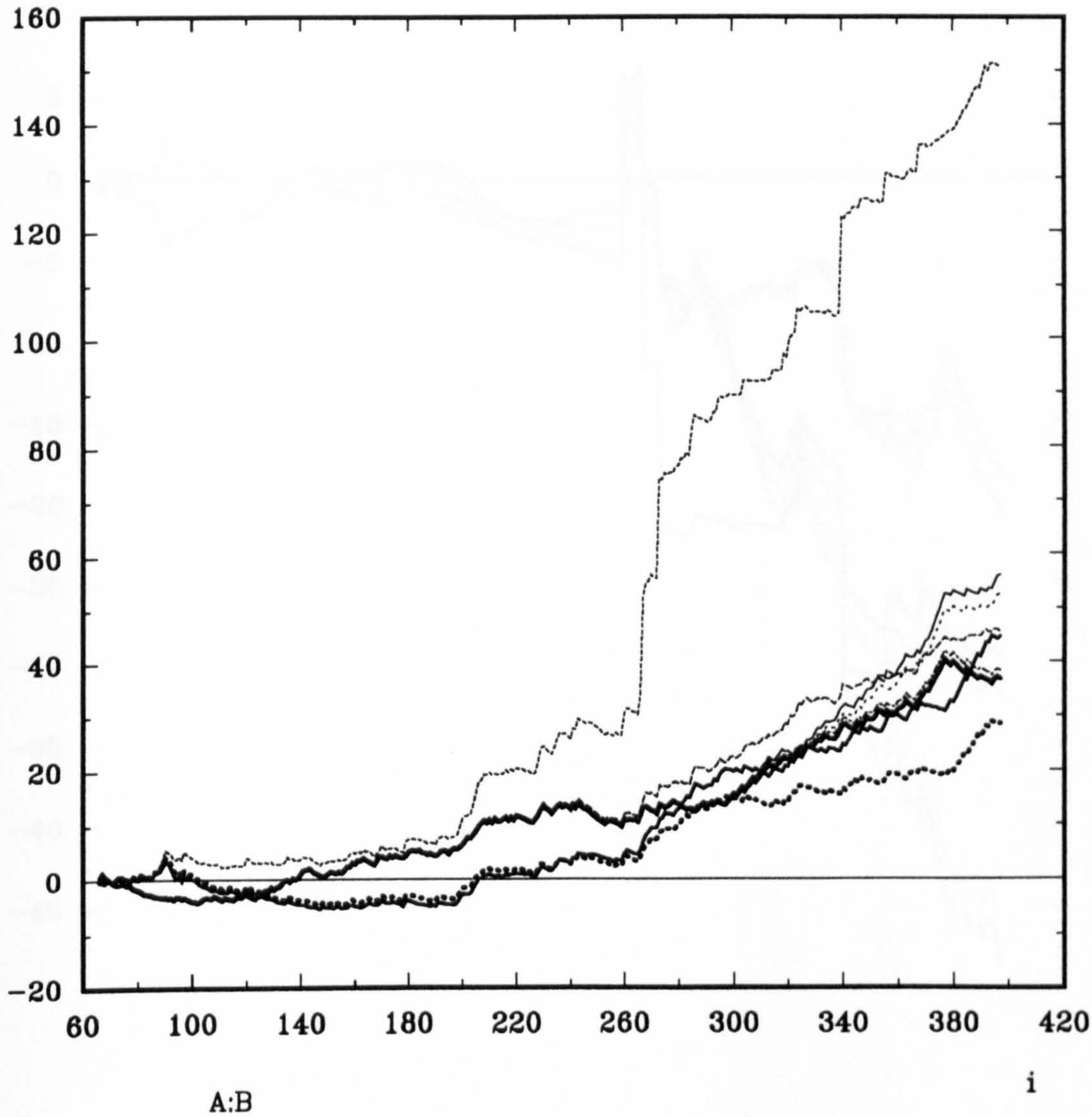


Figure B.4-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *USBAR*.

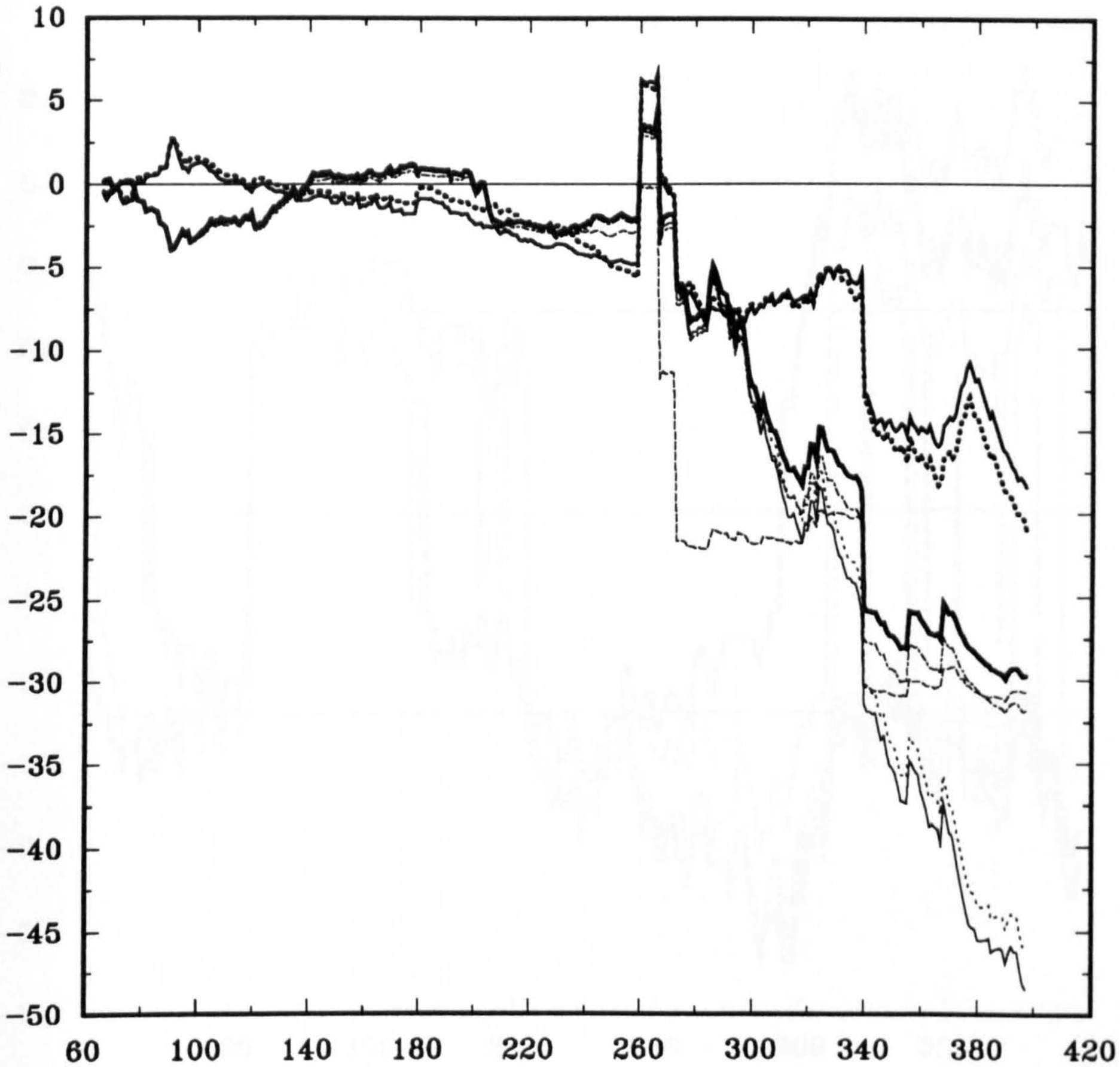


Figure B.4-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *USBAR*.

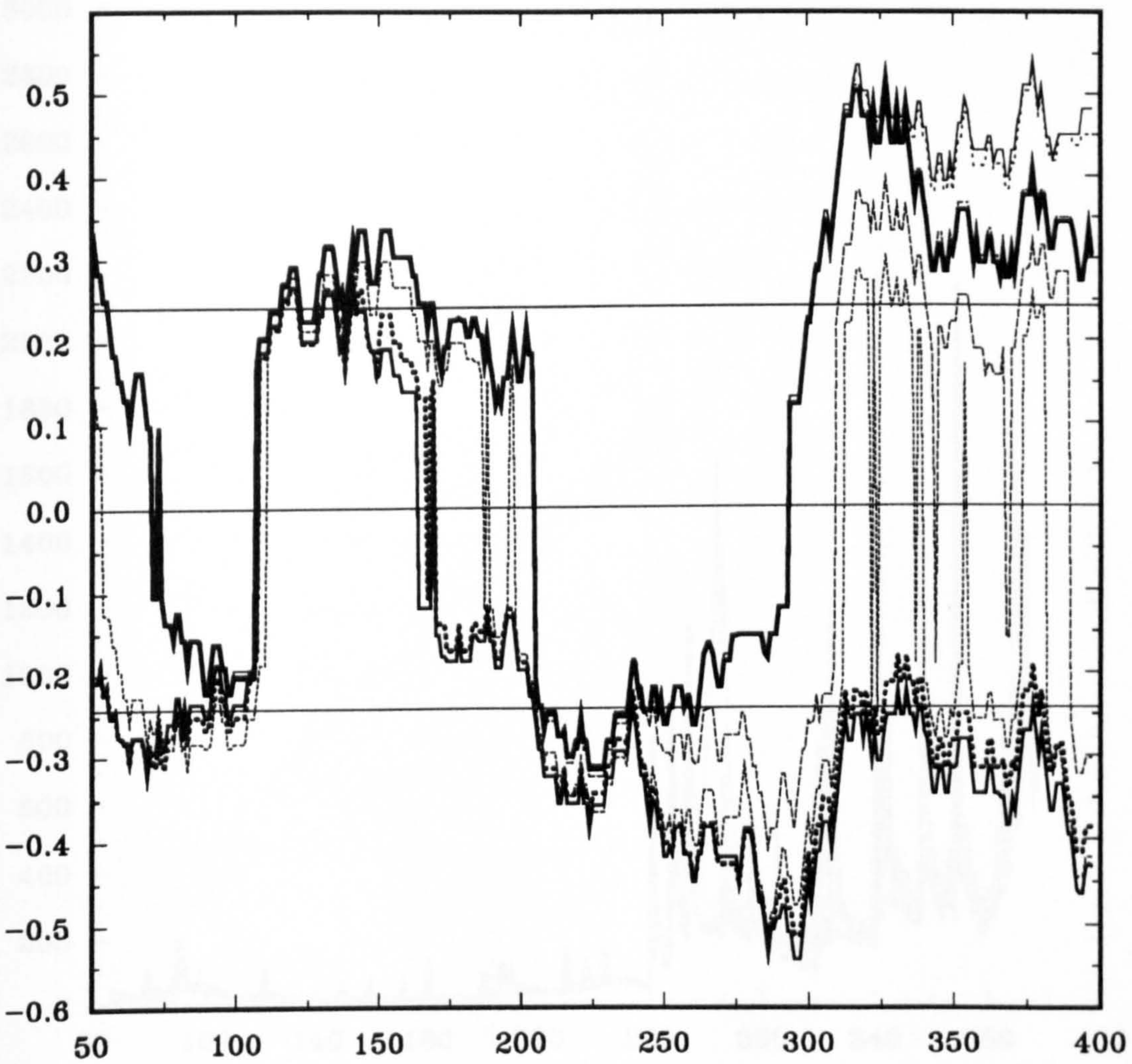


Figure B.4-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *USBAR*.

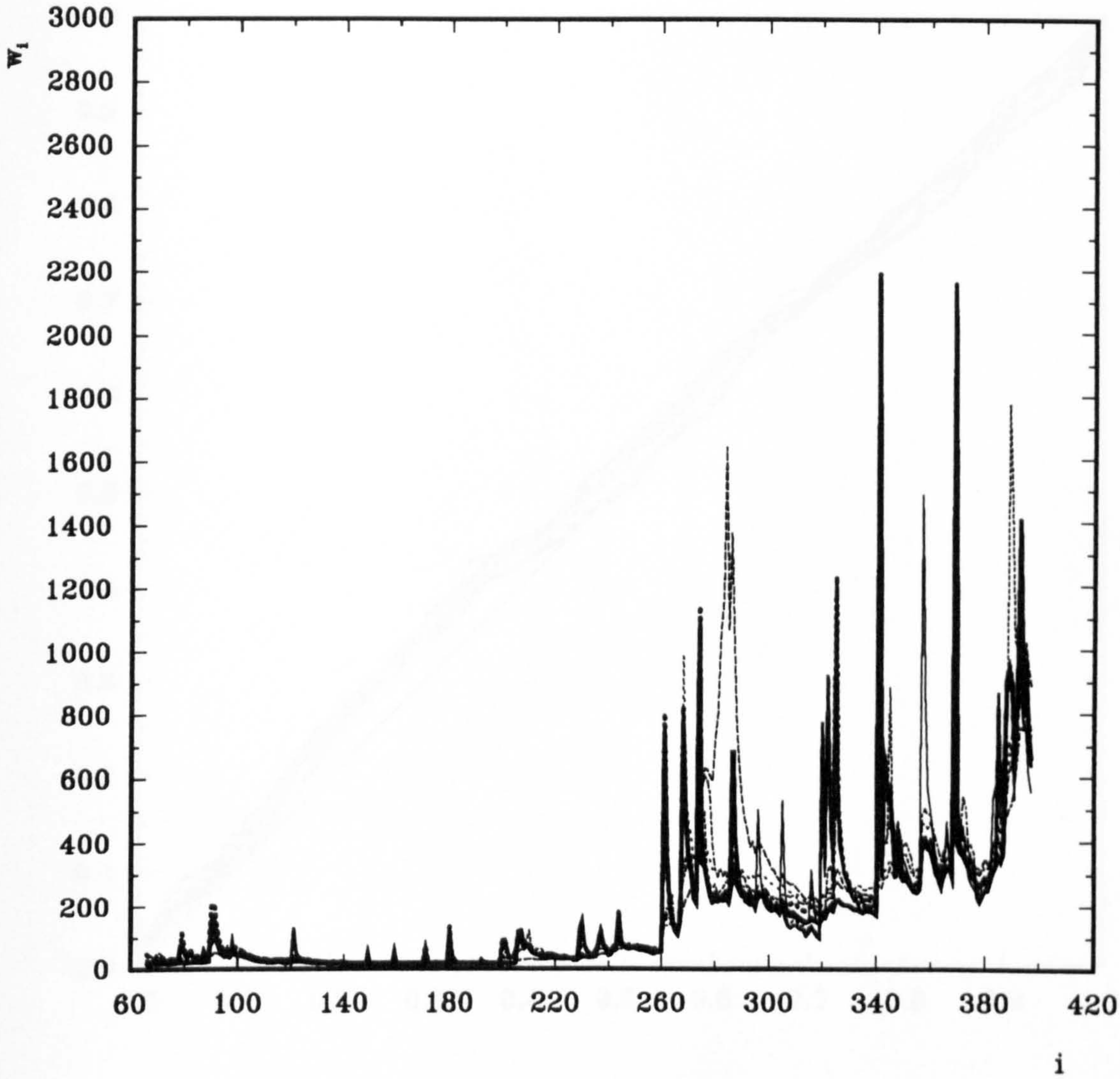
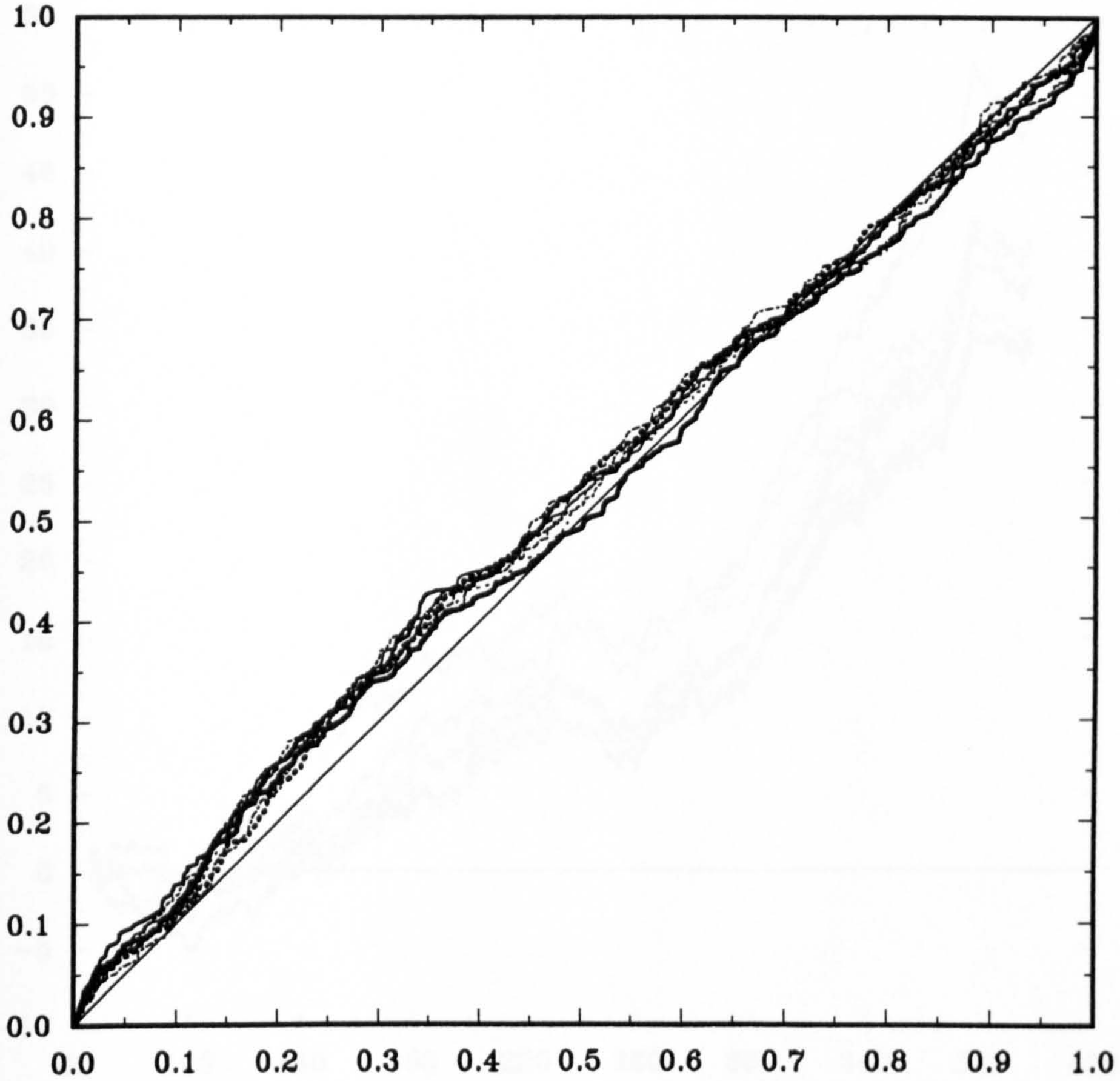


Figure B.4-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *USBAR*.



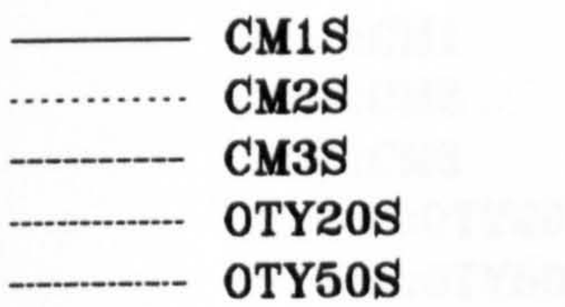


Figure B.4-17. *u*-plots for the recalibrated (no window) non-parametric predictors for data set *USBAR*.

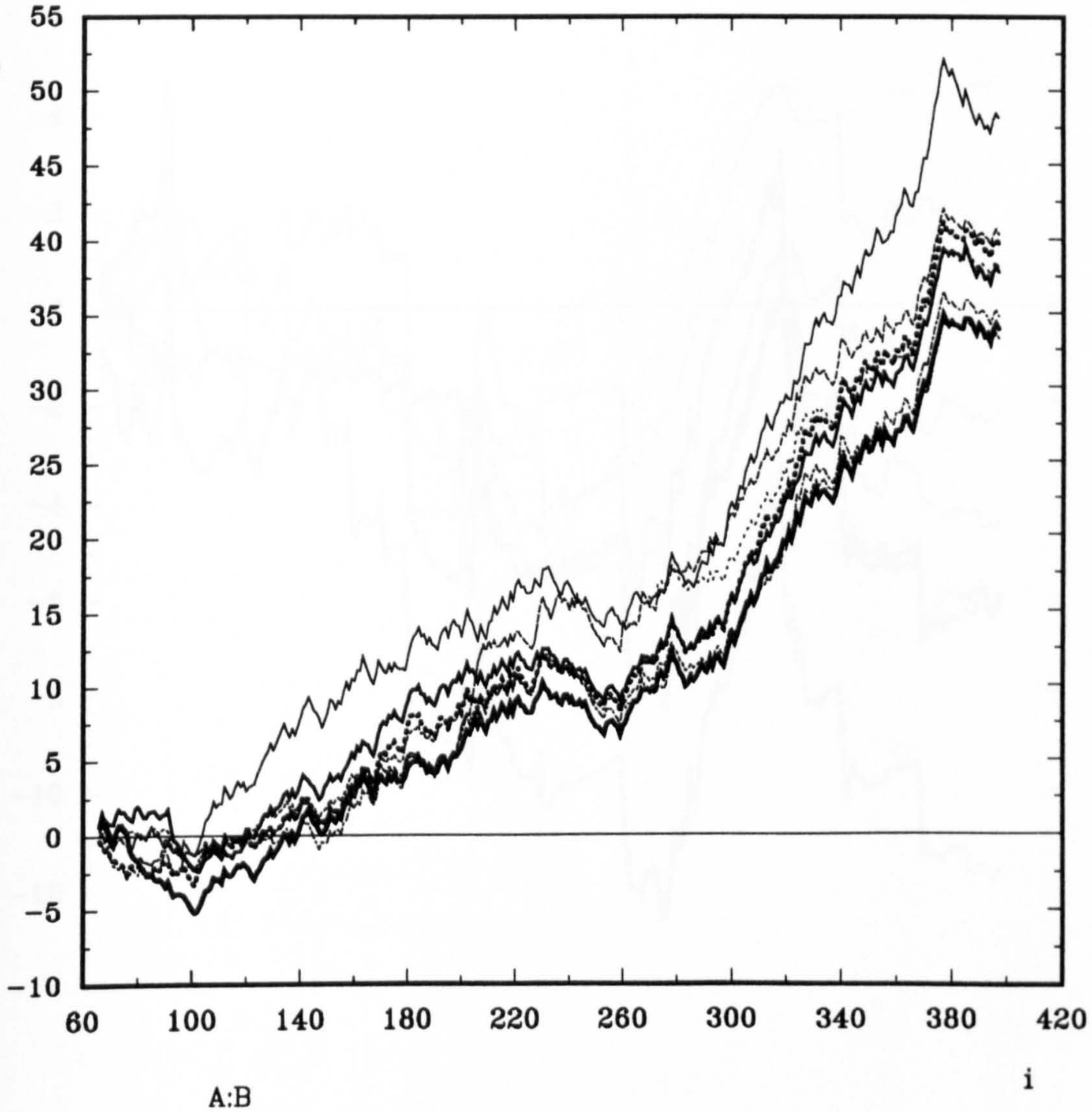


Figure B.4-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *USBAR*.

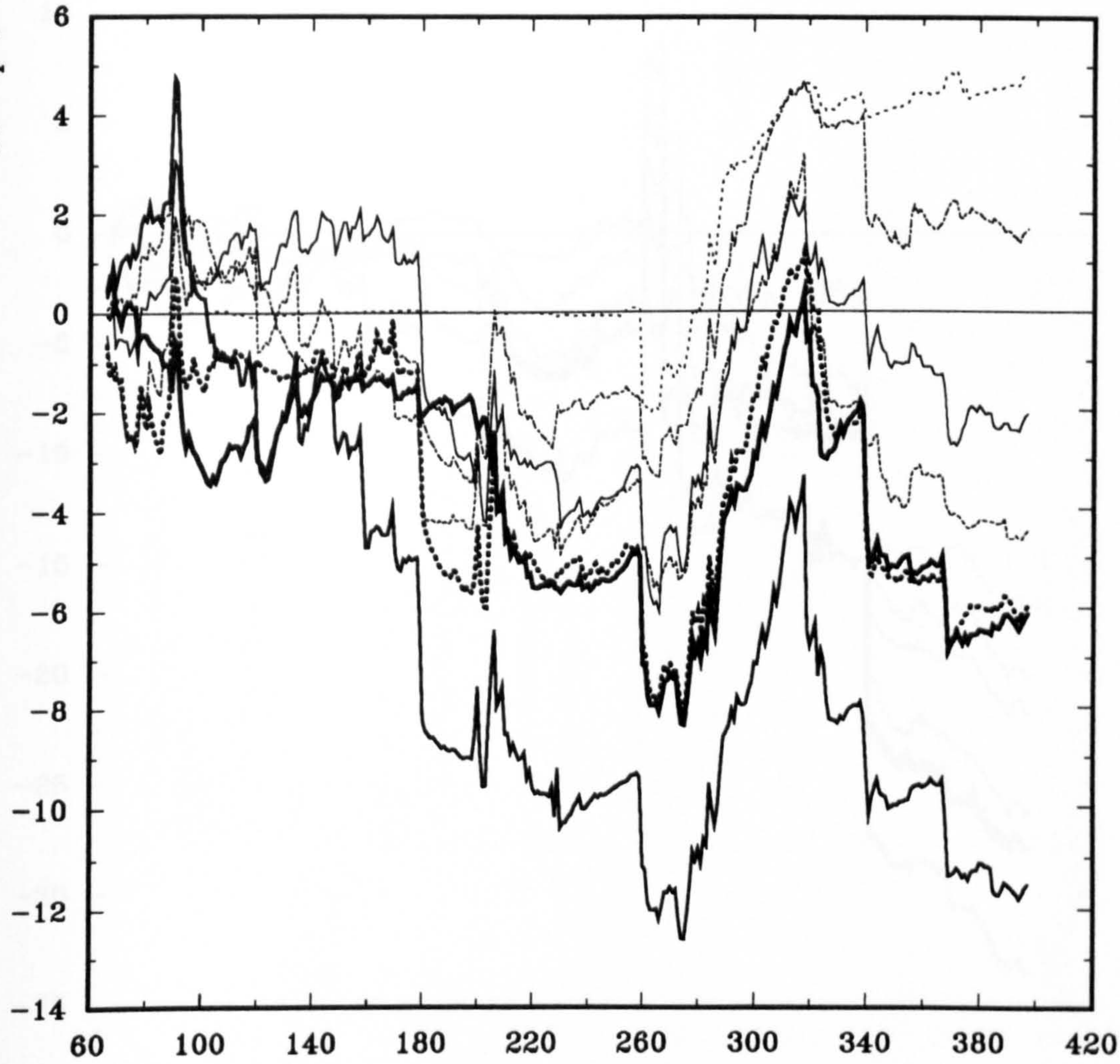


Figure B.4-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *USBAR*.

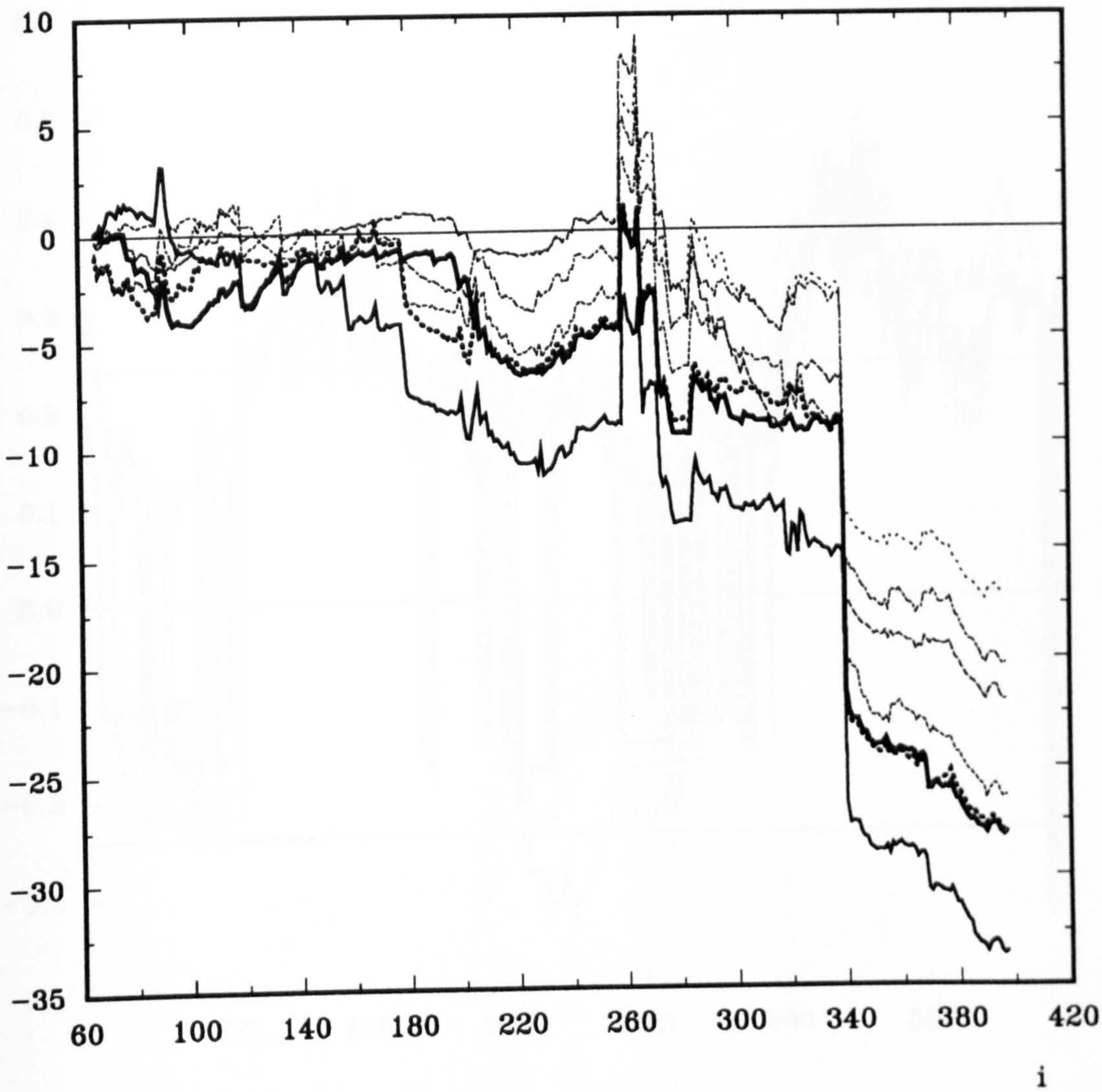


Figure B.4-20. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *DUS* for data set *USBAR*.

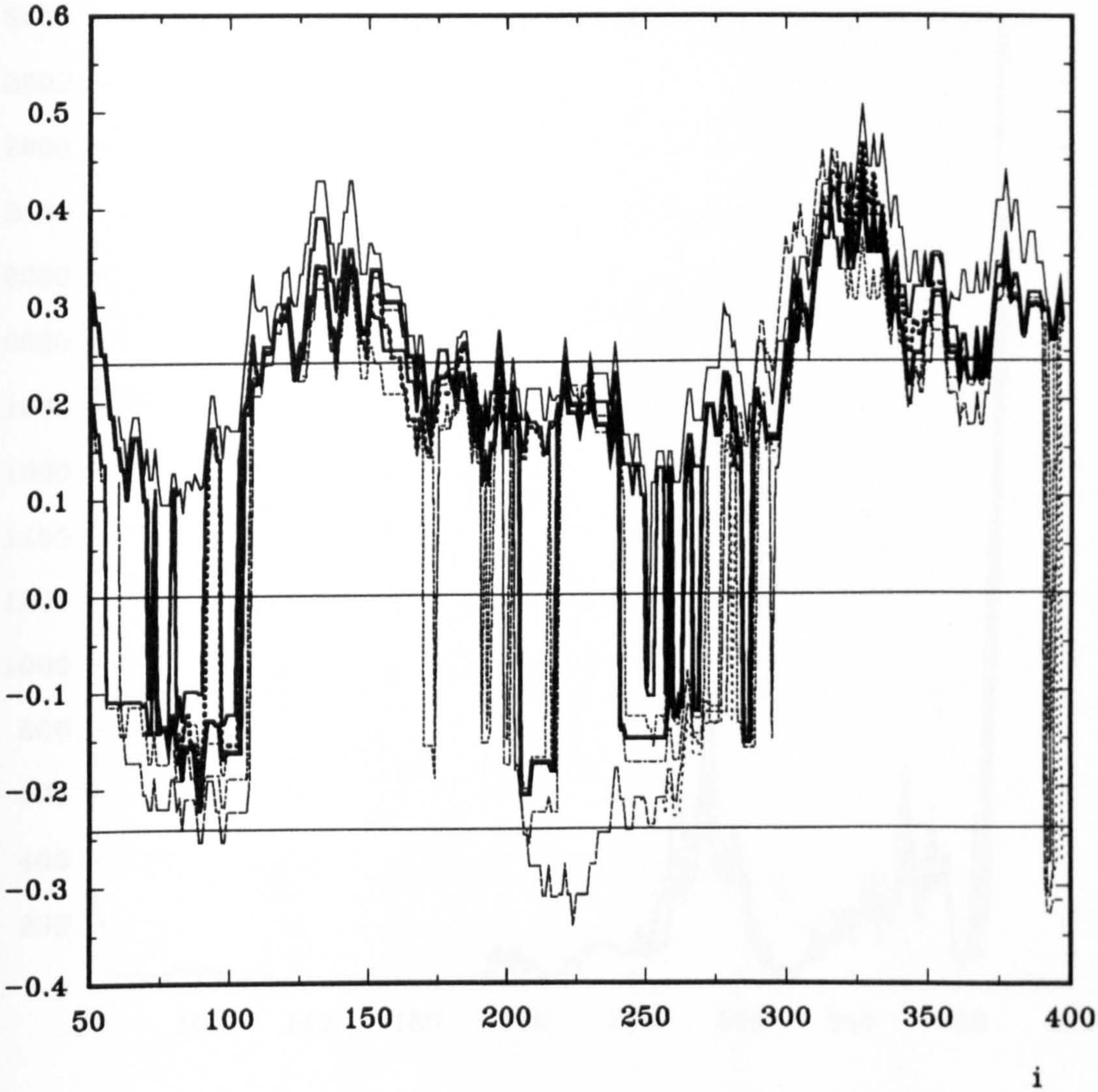


Figure B.4-21. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *USBAR*.

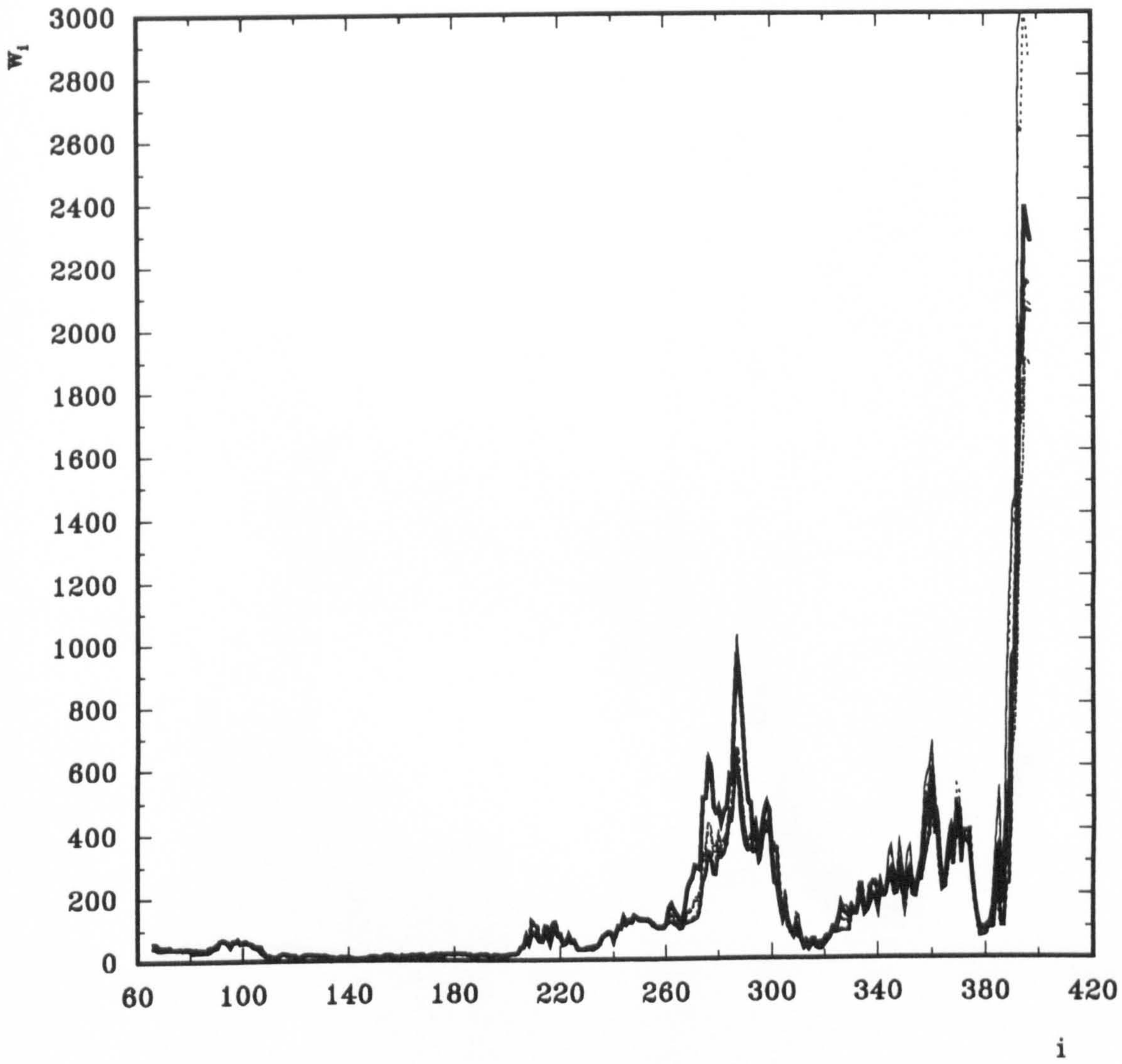


Figure B.4-22. Median predictions from the recalibrated (window = *20*) parametric predictors plotted against failure number for data set *USBAR*.

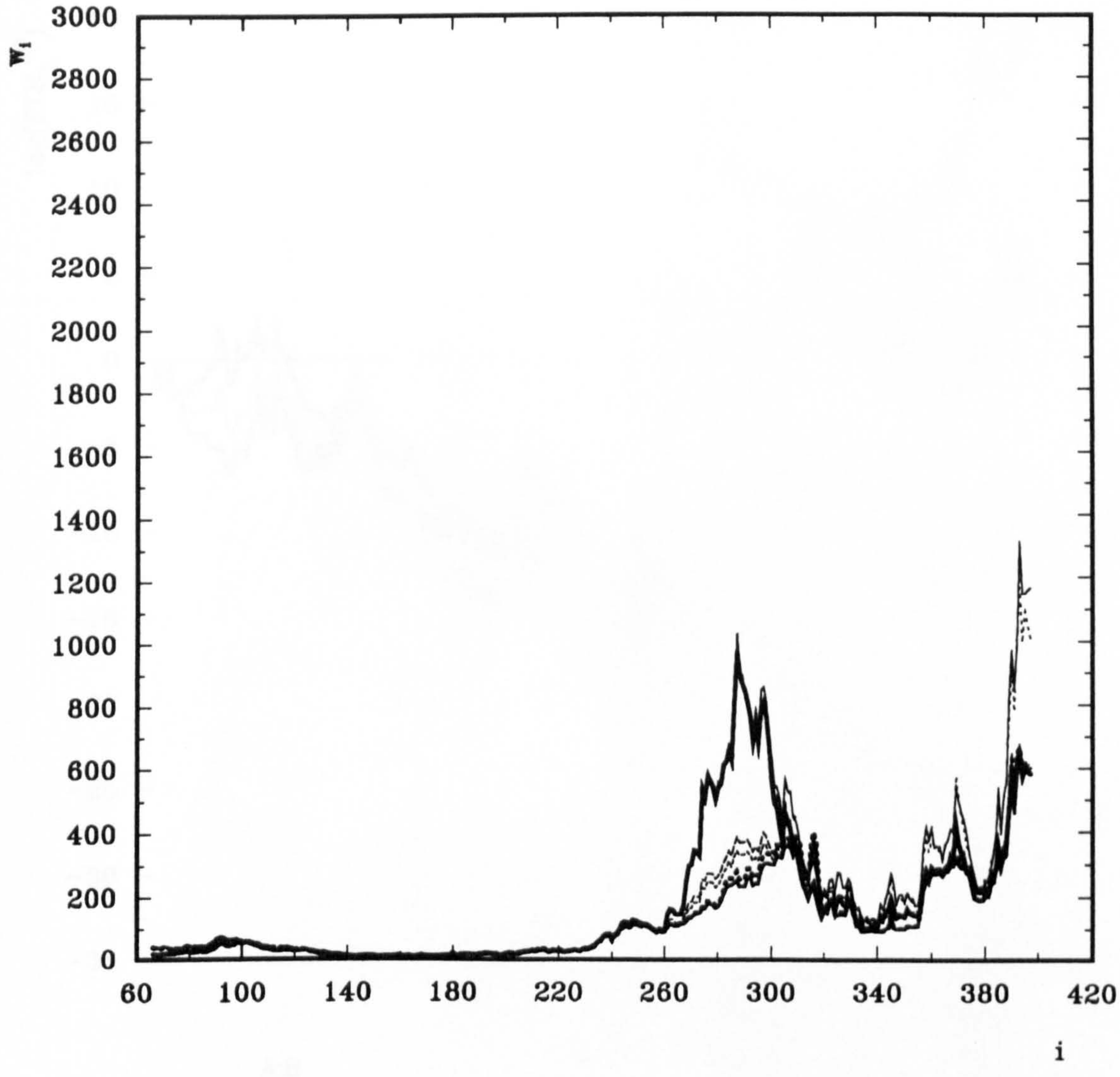


Figure B.4-23. Median predictions from the recalibrated (window = *50*) parametric predictors plotted against failure number for data set *USBAR*.

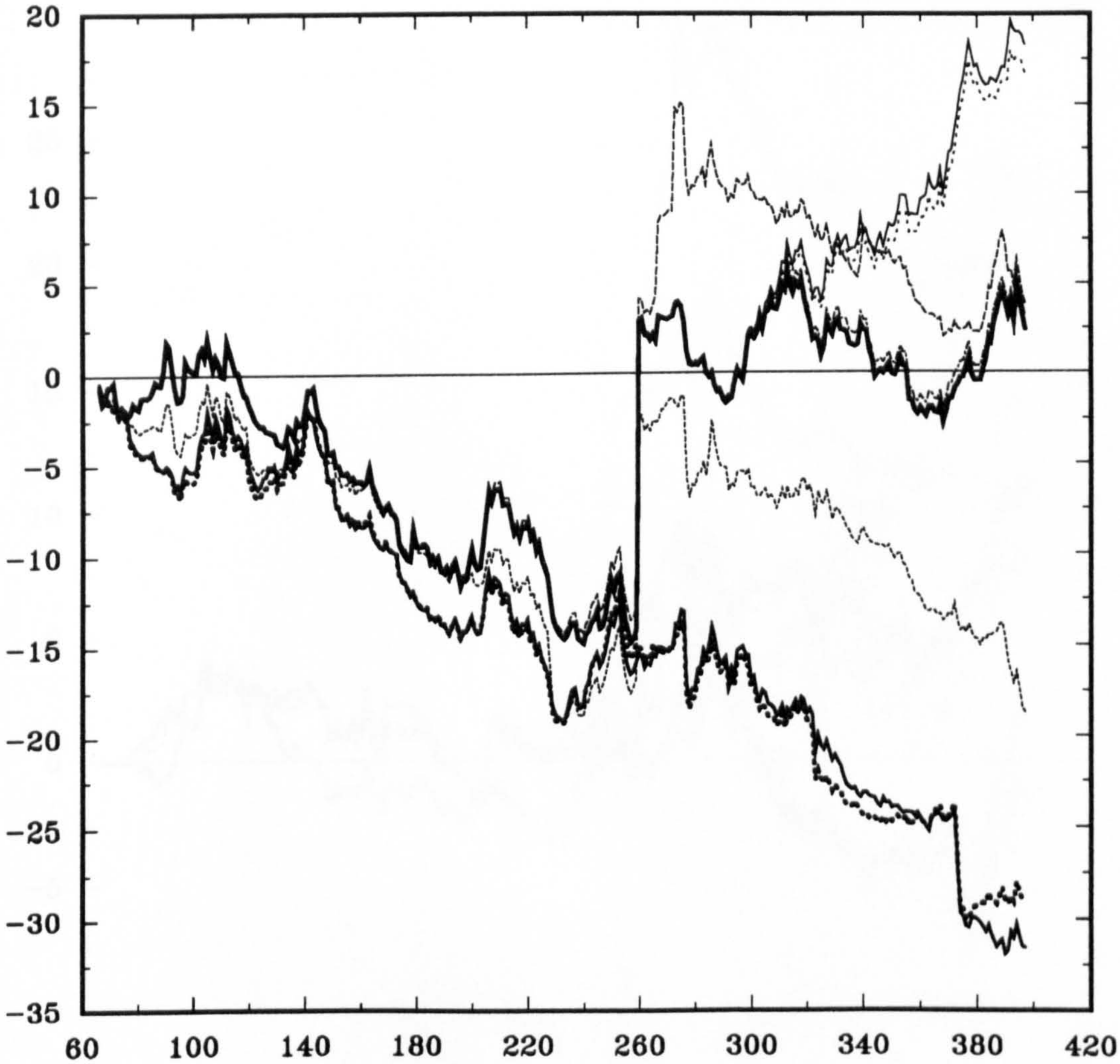


Figure B.4-24. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USBAR*.

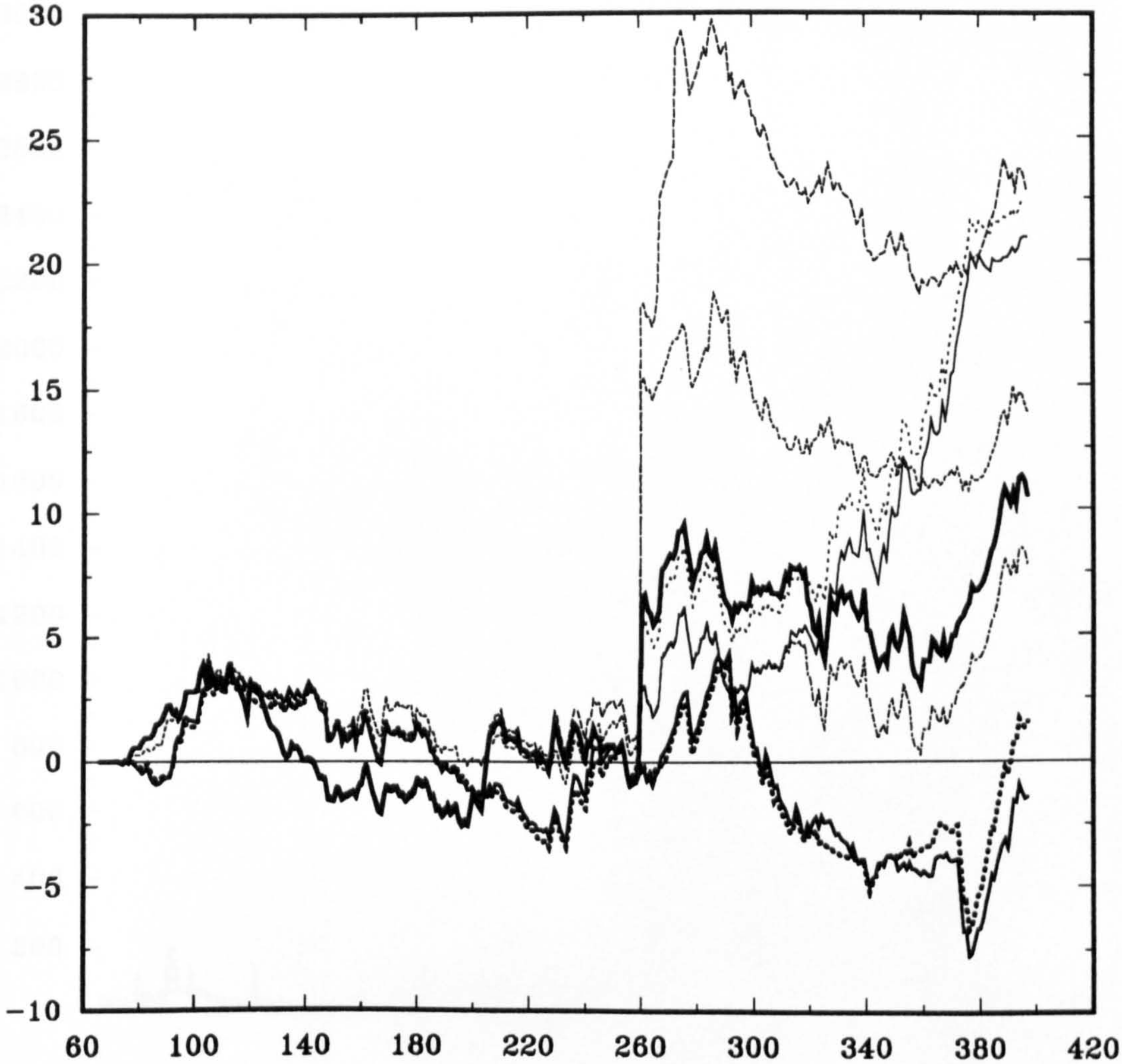


Figure B.4-25. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USBAR*.

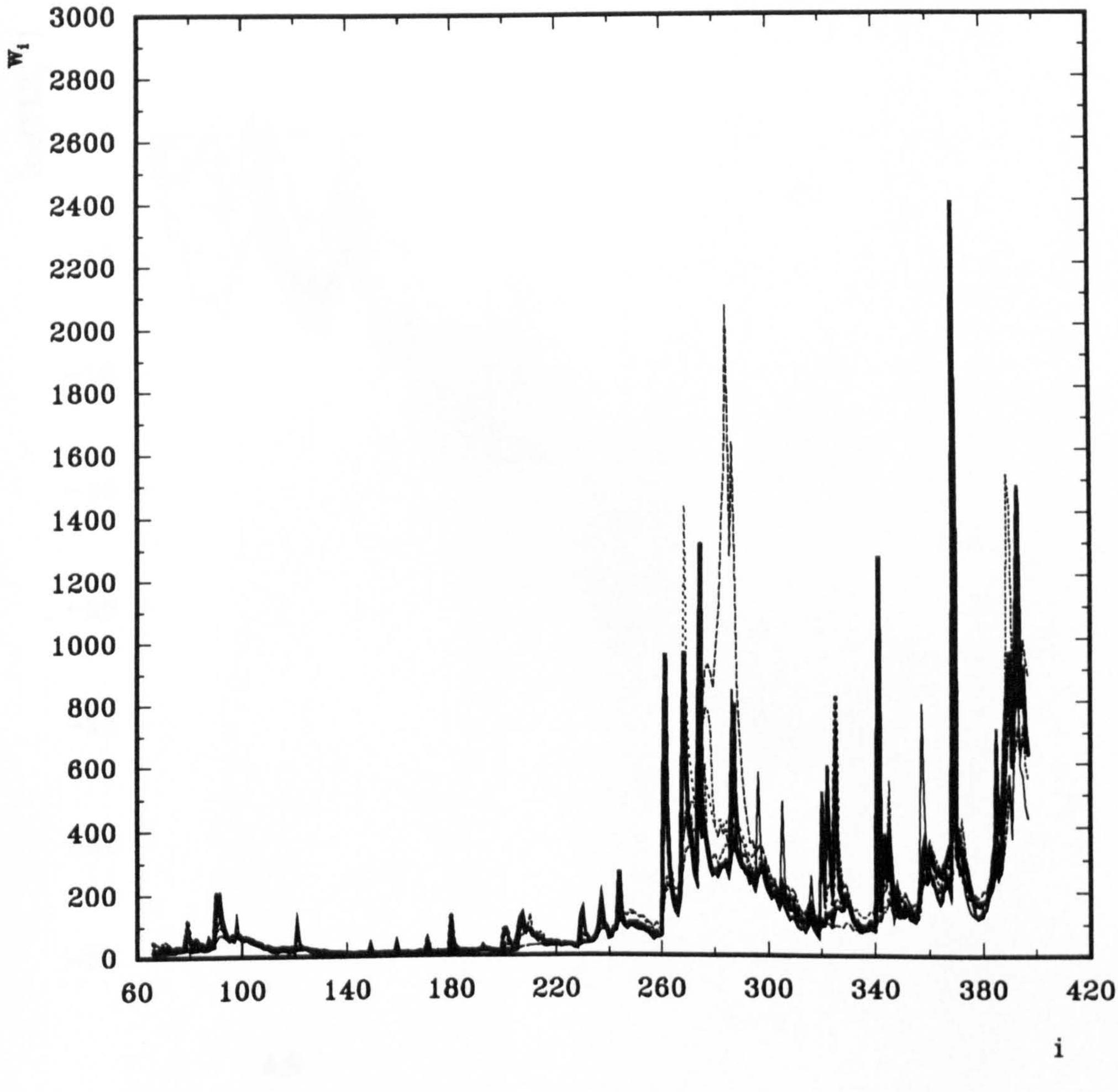


Figure B.4-26. Median predictions from the recalibrated (window = *50*) non-parametric predictors plotted against failure number for data set *USBAR*.

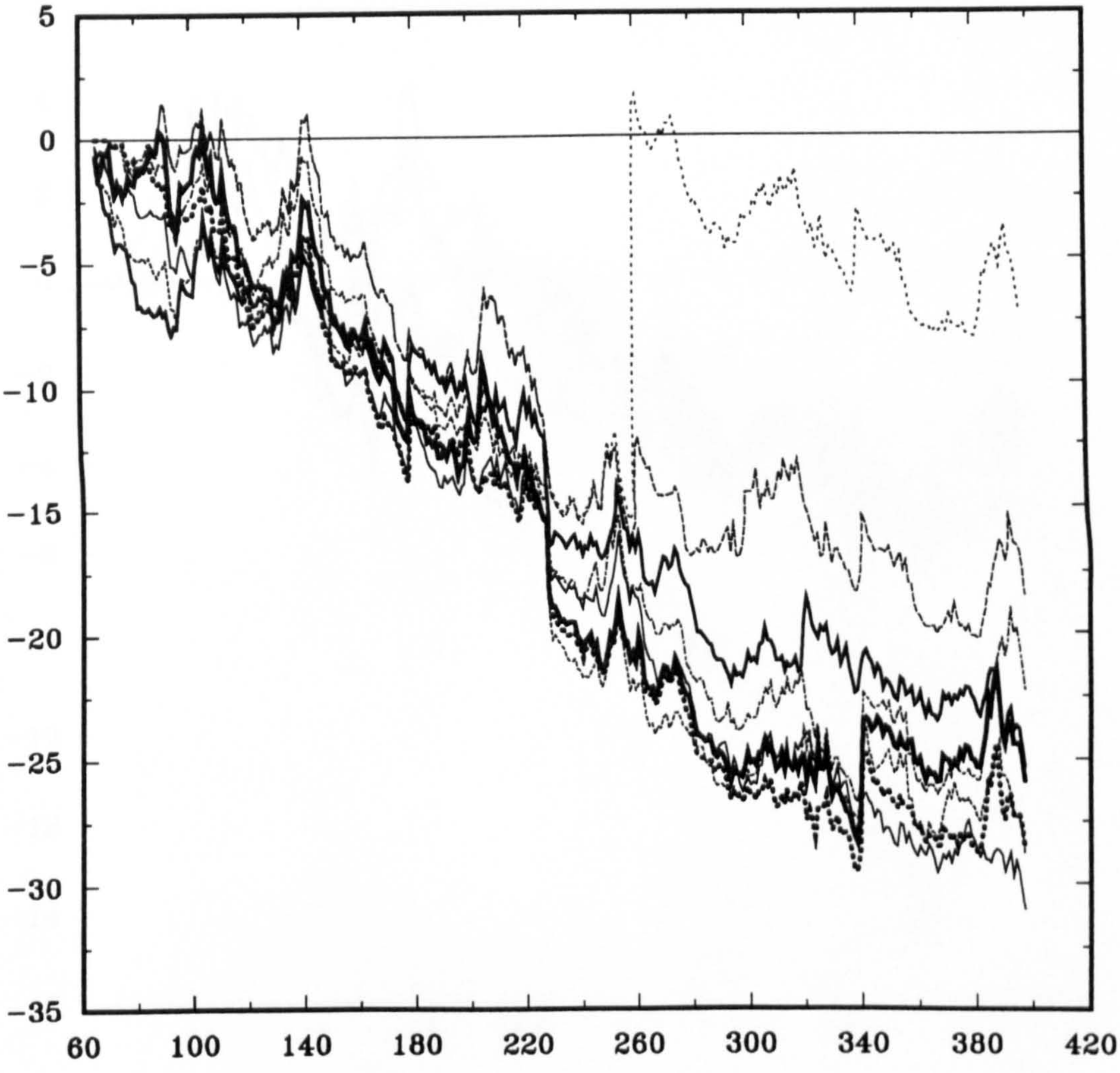


Figure B.4-27. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USBAR*.

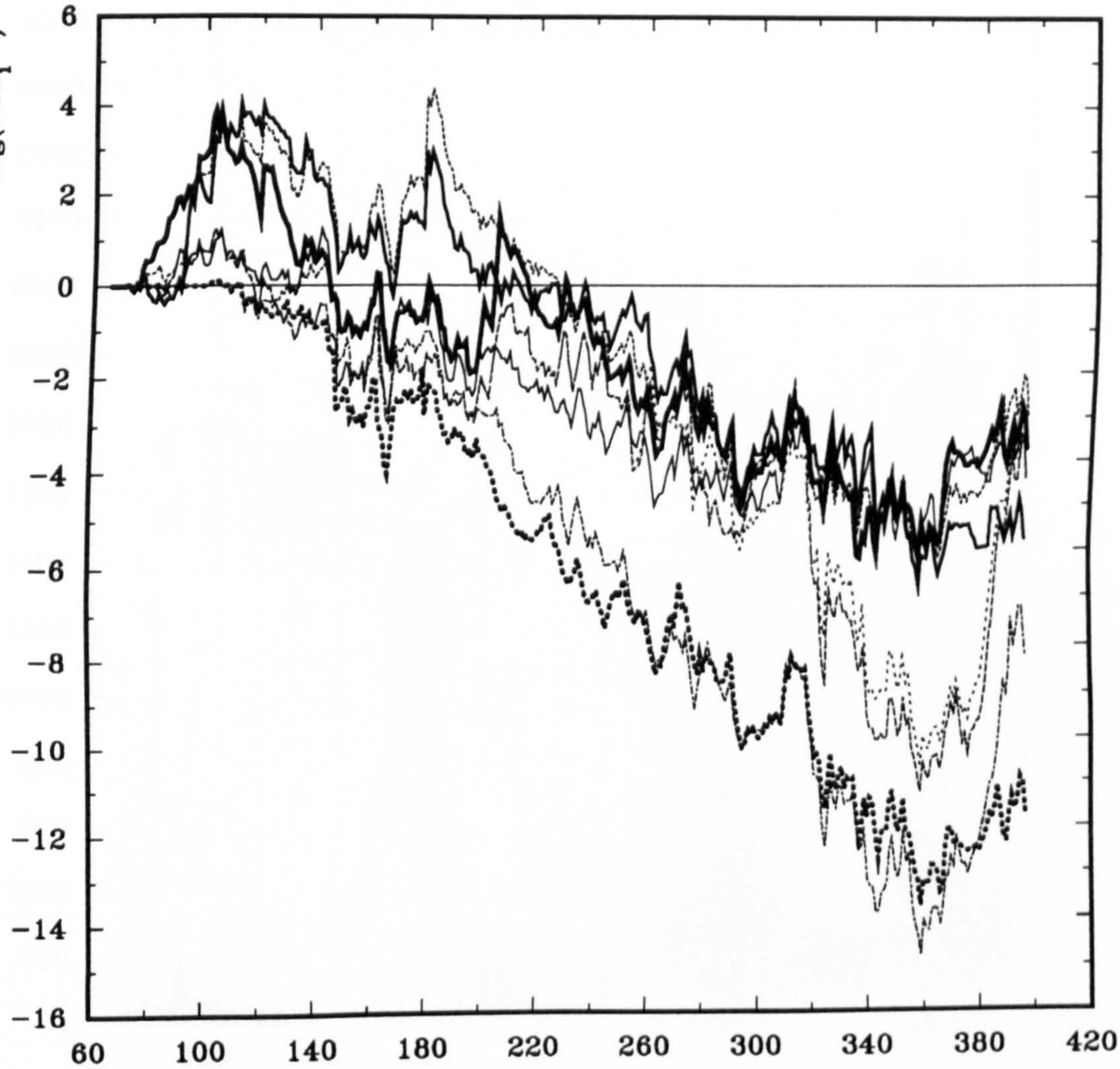


Figure B.4-28. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USBAR*.

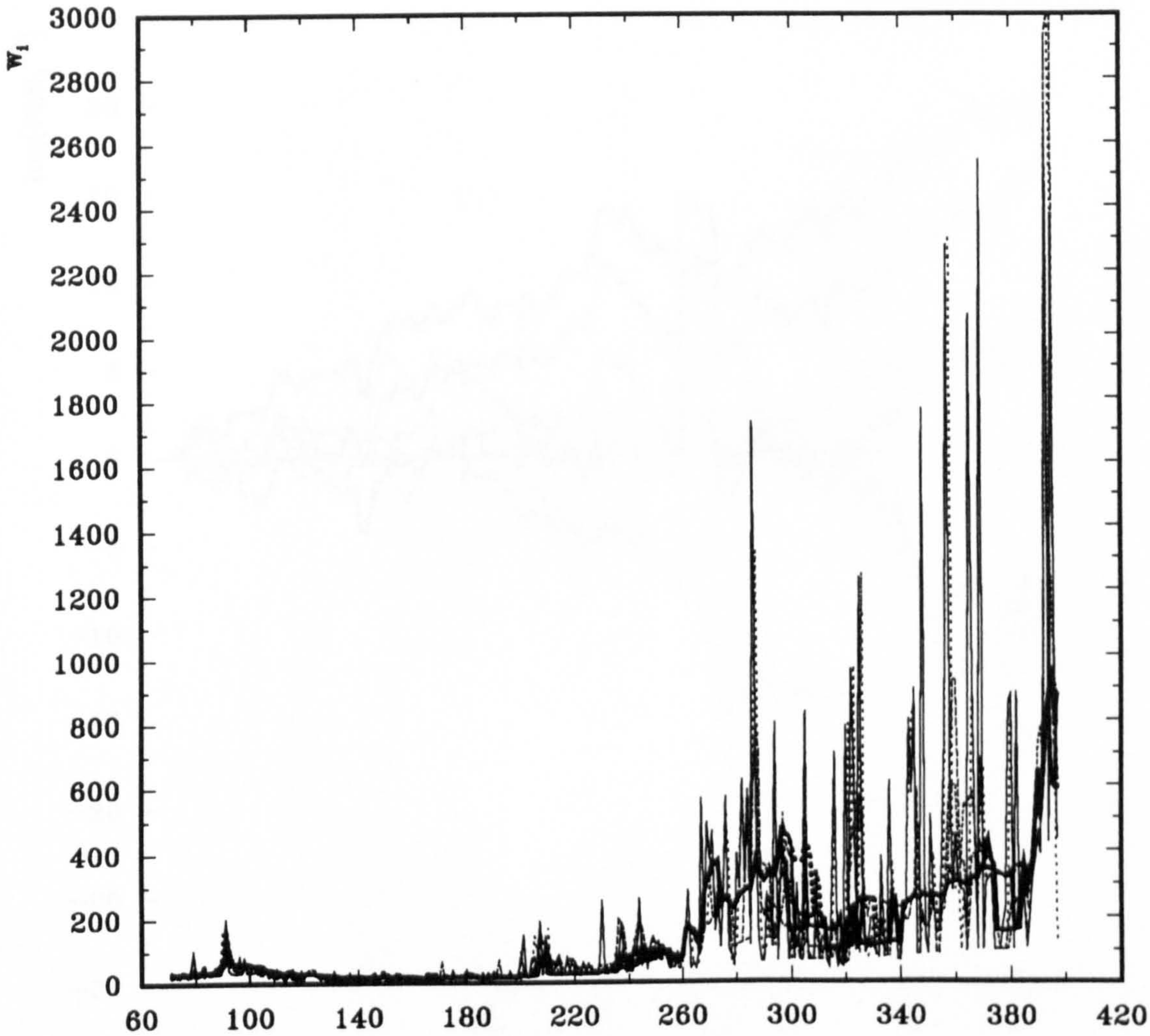


Figure B.4-29. Median predictions from the meta-predictors plotted against failure number for data set *USBAR*.

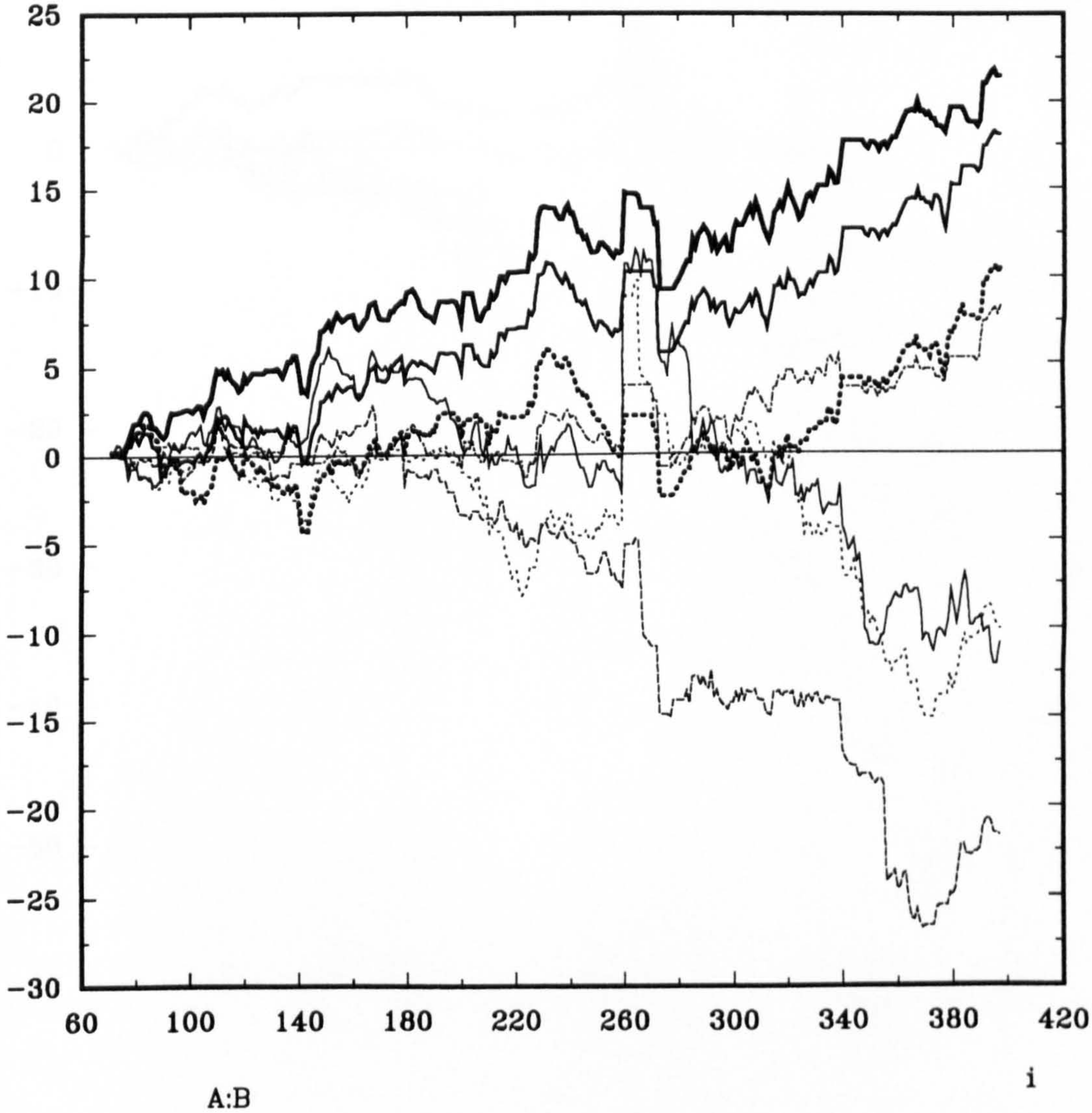


Figure B.4-30. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *USBAR*.

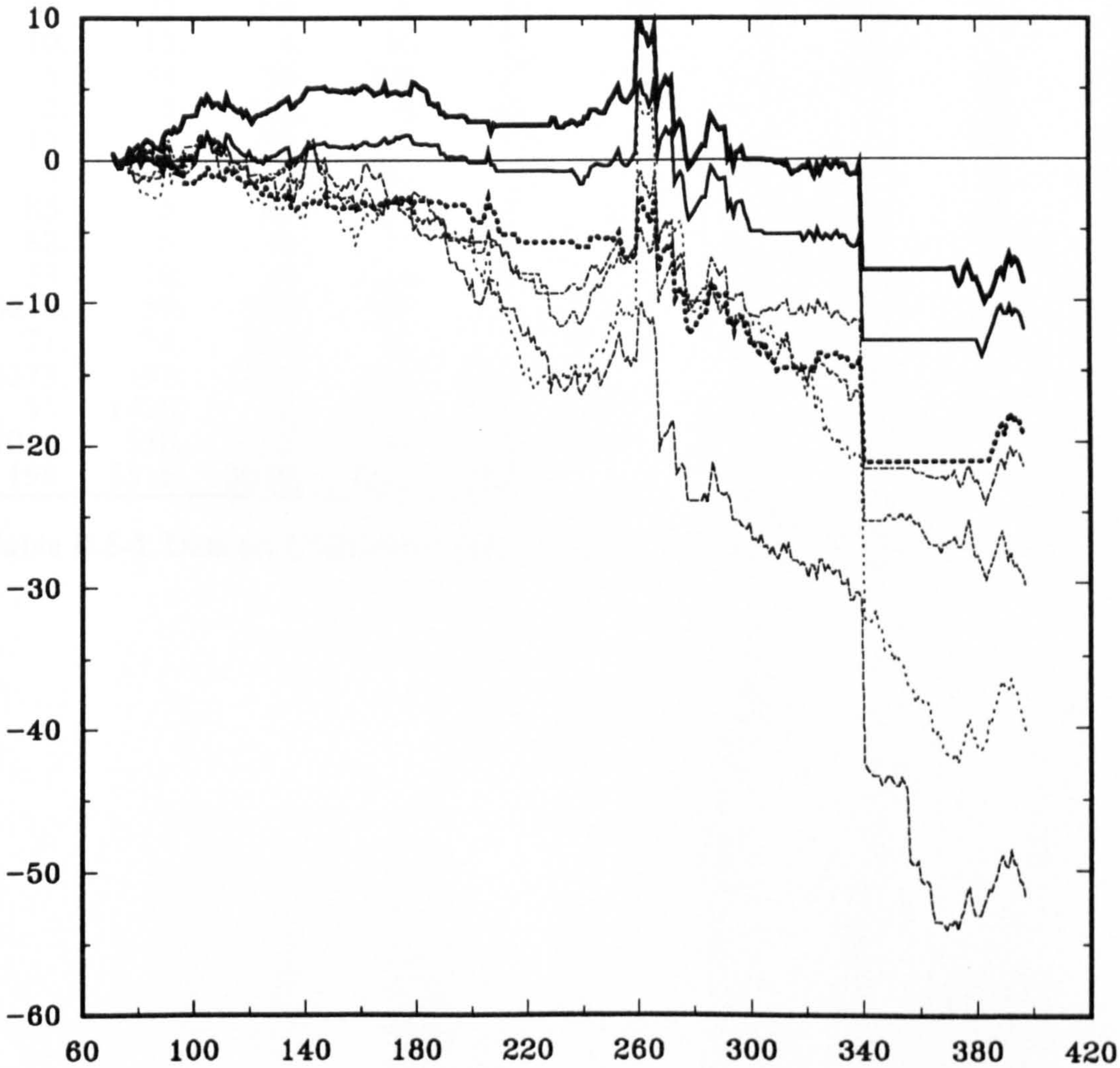


Figure B.4-31. *log(PLR)*-plots for the meta-predictors versus *DUS* for data set *USBAR*.

B.5 Data Set USROFF

25.	40.	23.	5.	53.	4.	16.	94.	15.	5.
90.	77.	68.	8.	137.	23.	1.	104.	16.	9.
10.	12.	4.	10.	57.	78.	36.	60.	11.	5.
5.	34.	16.	164.	102.	77.	247.	244.	60.	5.
2.	5.	130.	0.5	334.	24.	145.	37.	133.	5.
12.	18.	70.	3.	10.	114.	104.	1.	30.	15.
5.	104.	265.	290.	5.	63.	42.	357.	128.	388.
85.	5.	96.	35.	151.	139.	110.	98.	60.	90.
82.	5.	30.	35.	231.	62.	158.	1613.	117.	236.
33.	70.	35.	116.	806.	880.	745.	309.	624.	2264.
3218.	59.	333.	287.	1.	881.	13.	1968.	11.	17.
71.	34.	761.	38.	78.	1647.	205.	936.	2605.	376.
4373.	197.	1174.	783.	2761.	25.	98.	722.	222.	78.
33.	1420.	6.	4283.	803.	297.	571.	140.	30.	1436.
1044.	556.	55.	4698.	1706.	2459.	3357.	2976.	2177.	1865.
198.	3316.	3086.	3012.	783.					

Table B.5-1. Data set *USROFF*; 155 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	F	F	F	B	A	D	A	E	A	F	B
GO	F	F	F	F	A	A	C	A	D	A	F	A
MO	D	A	D	A	C	A	C	A	D	A	E	A
DU	B	F	D	A	D	A	E	A	E	A	F	A
LM	E	F	B	A	A	A	A	A	A	A	A	A
LNHPP	E	D	C	A	A	A	A	A	A	A	B	A
LV	A	F	A	E	B	A	B	B	B	B	B	D
KL	A	F	A	D	B	A	B	B	B	C	B	C
CM1	A	F	A	A	A	A	A	A	A	A	A	A
CM2	A	B	A	A	A	A	B	A	B	A	A	A
CM3	A	C	A	A	A	A	B	A	A	A	A	A
OTY20	A	B	B	A	A	A	B	A	B	A	B	A
OTY50	A	B	A	A	A	A	A	A	A	A	A	A
OTL	A	D	A	A	A	A	B	A	B	A	A	A
OTL20	A	D	A	A	A	A	A	A	A	A	B	A
OTL50	A	D	A	A	A	A	A	A	A	A	A	A

Table B.5-2.1. *u*- and *y*-plot significance levels for data set *USROFF* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
A	A	A	A	A	A	B	A	A	A	C	A	A	A	A	A

Table B.5-2.2. *u*- and *y*-plot significance levels for data set *USROFF* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

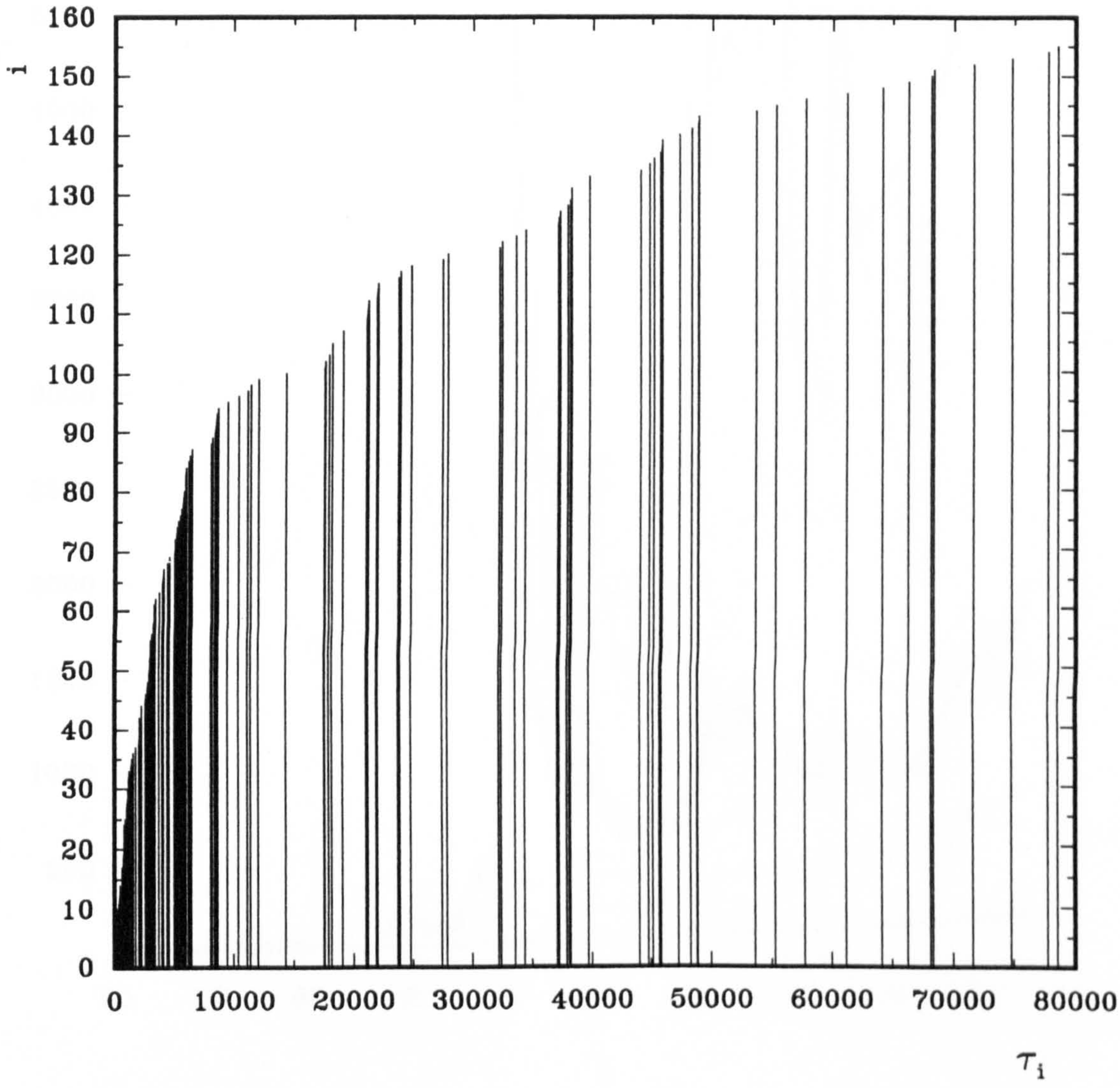


Figure B.5-3. Cumulative number of failures plotted against total elapsed time for data set *USROFF*.

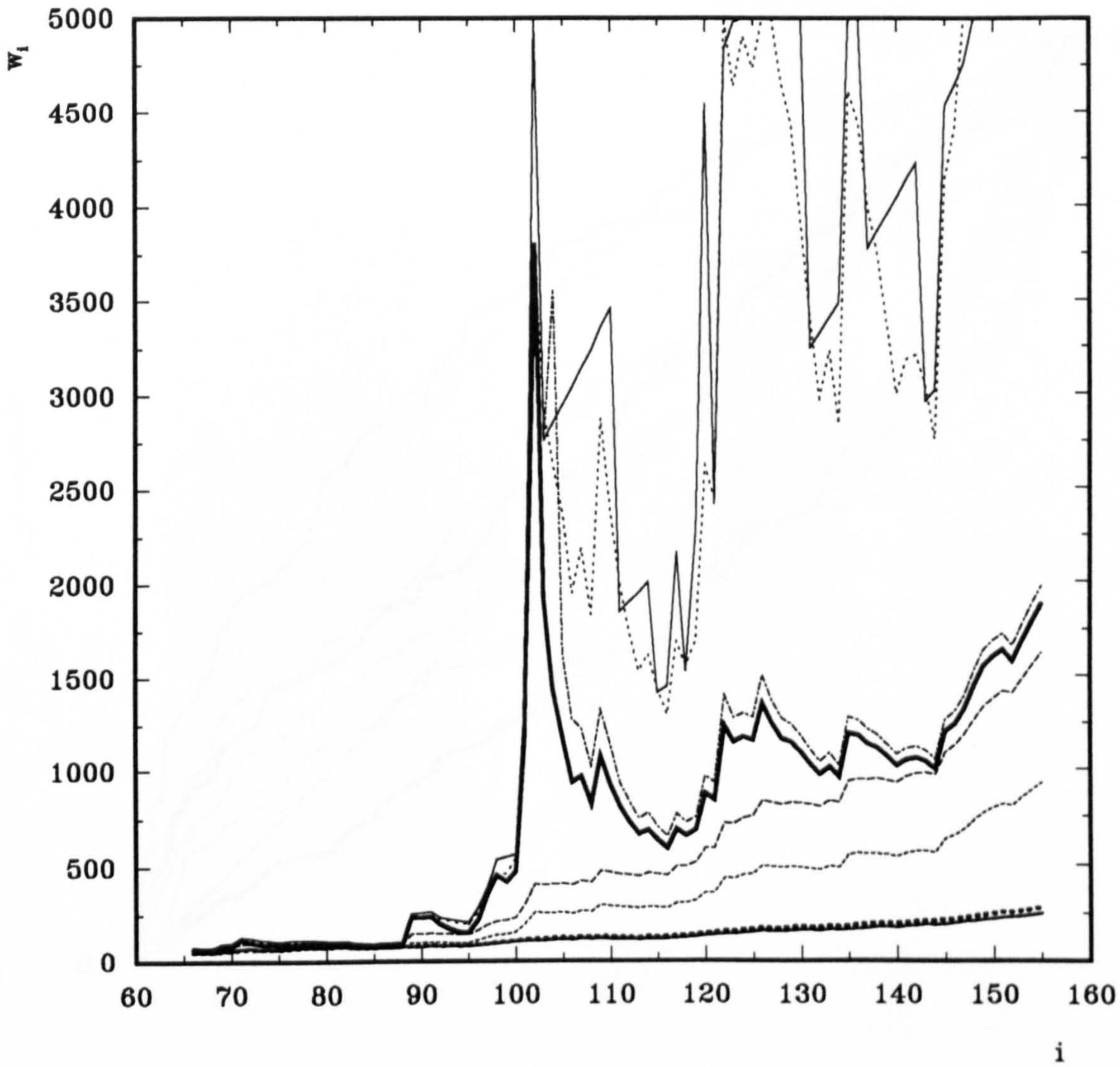


Figure B.5-4. Median predictions from the raw parametric predictors plotted against failure number for data set *USROFF*.

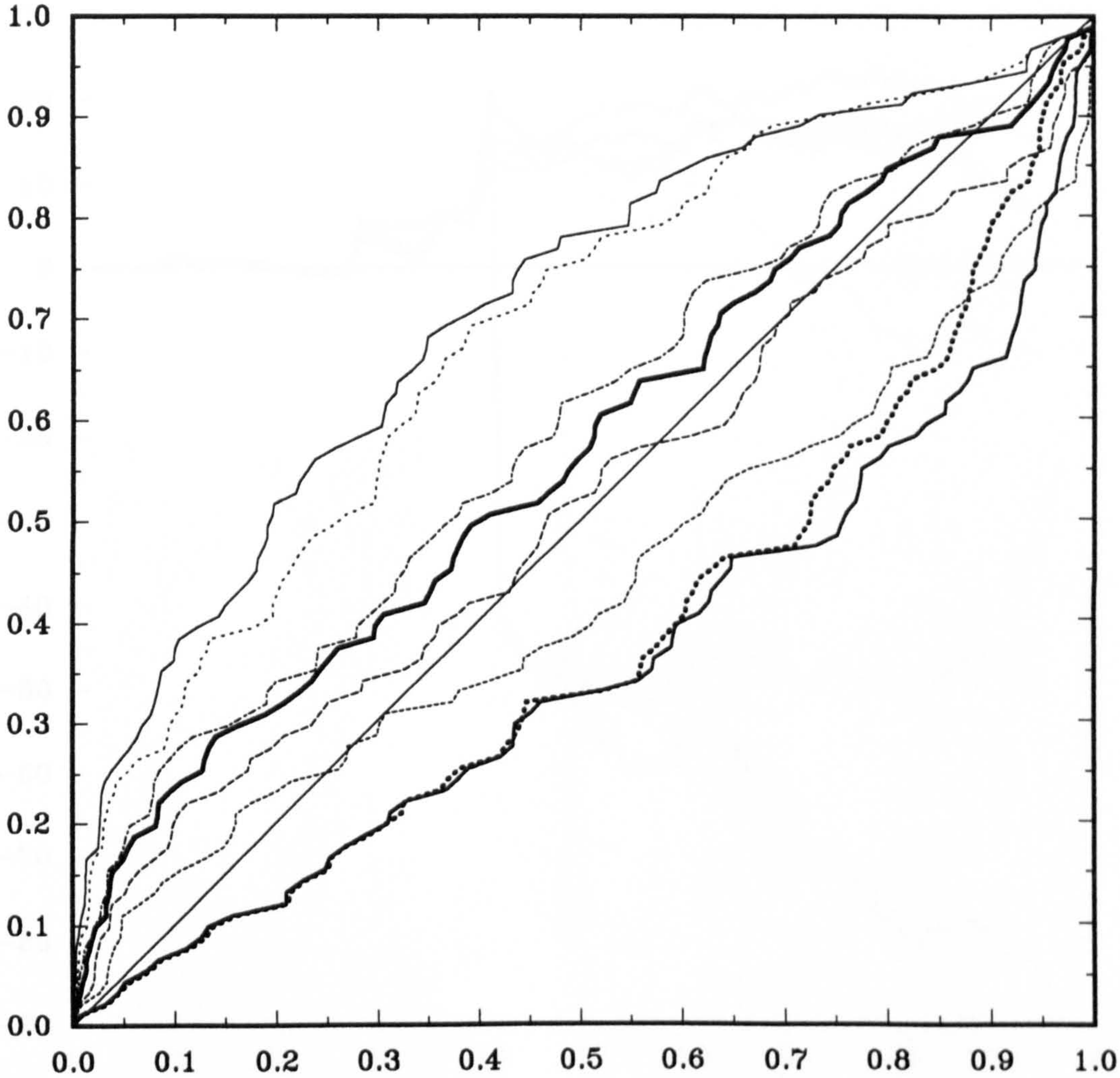


Figure B.5-5. *u*-plots for the raw parametric predictors for data set *USROFF*.

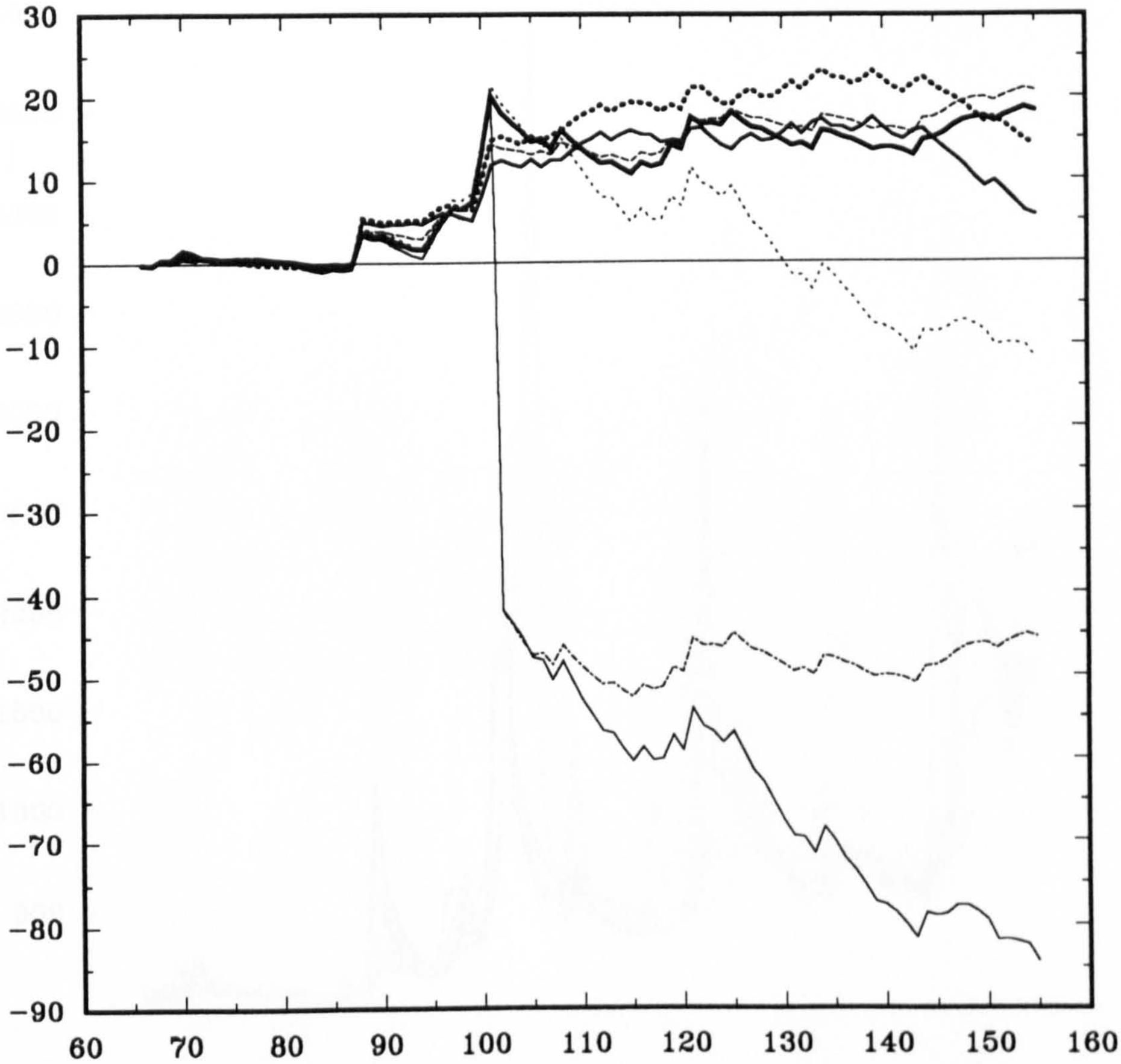


Figure B.5-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *USROFF*.

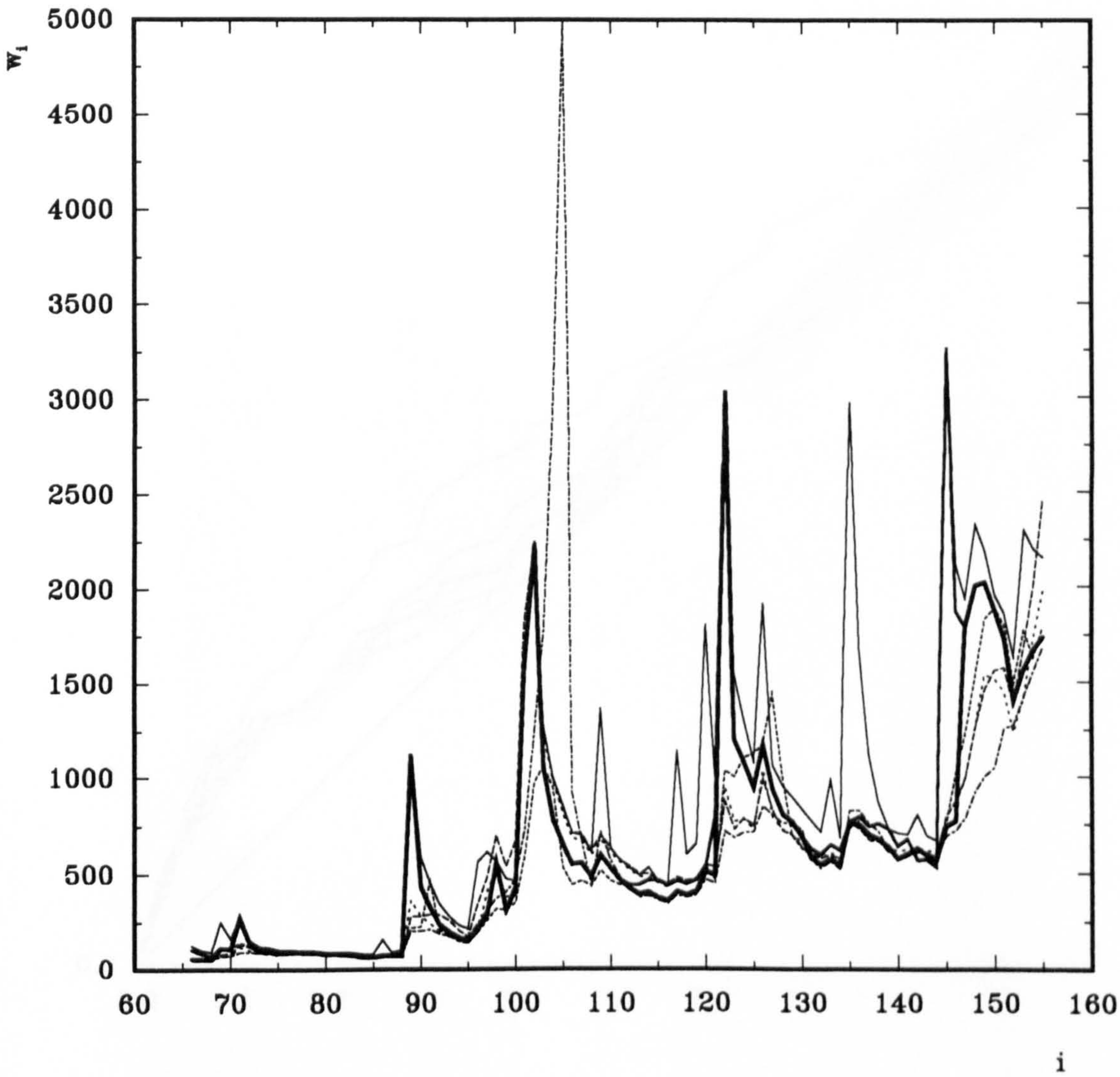


Figure B.5-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *USROFF*.

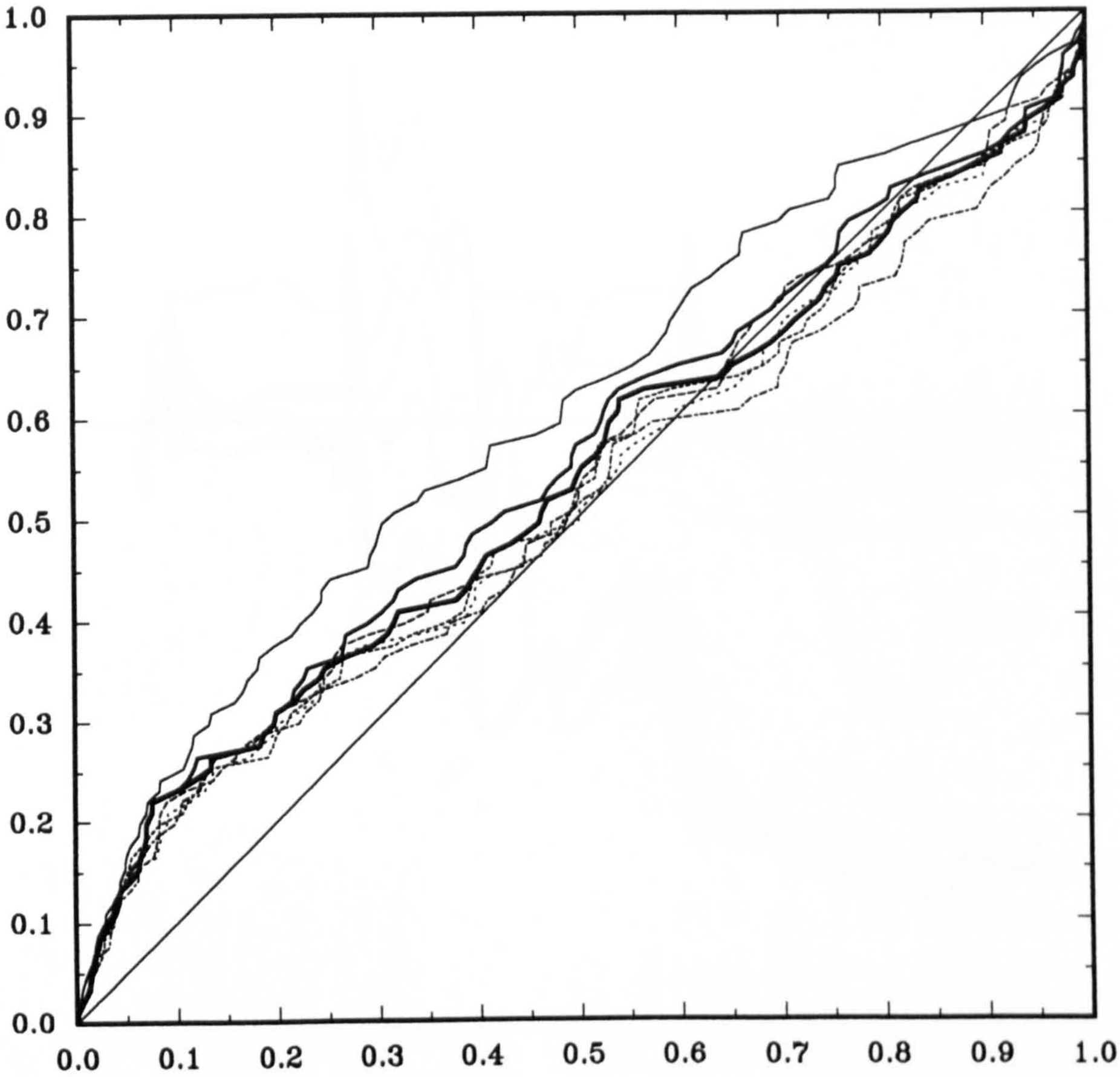


Figure B.5-8. *u*-plots for the raw non-parametric predictors for data set *USROFF*.

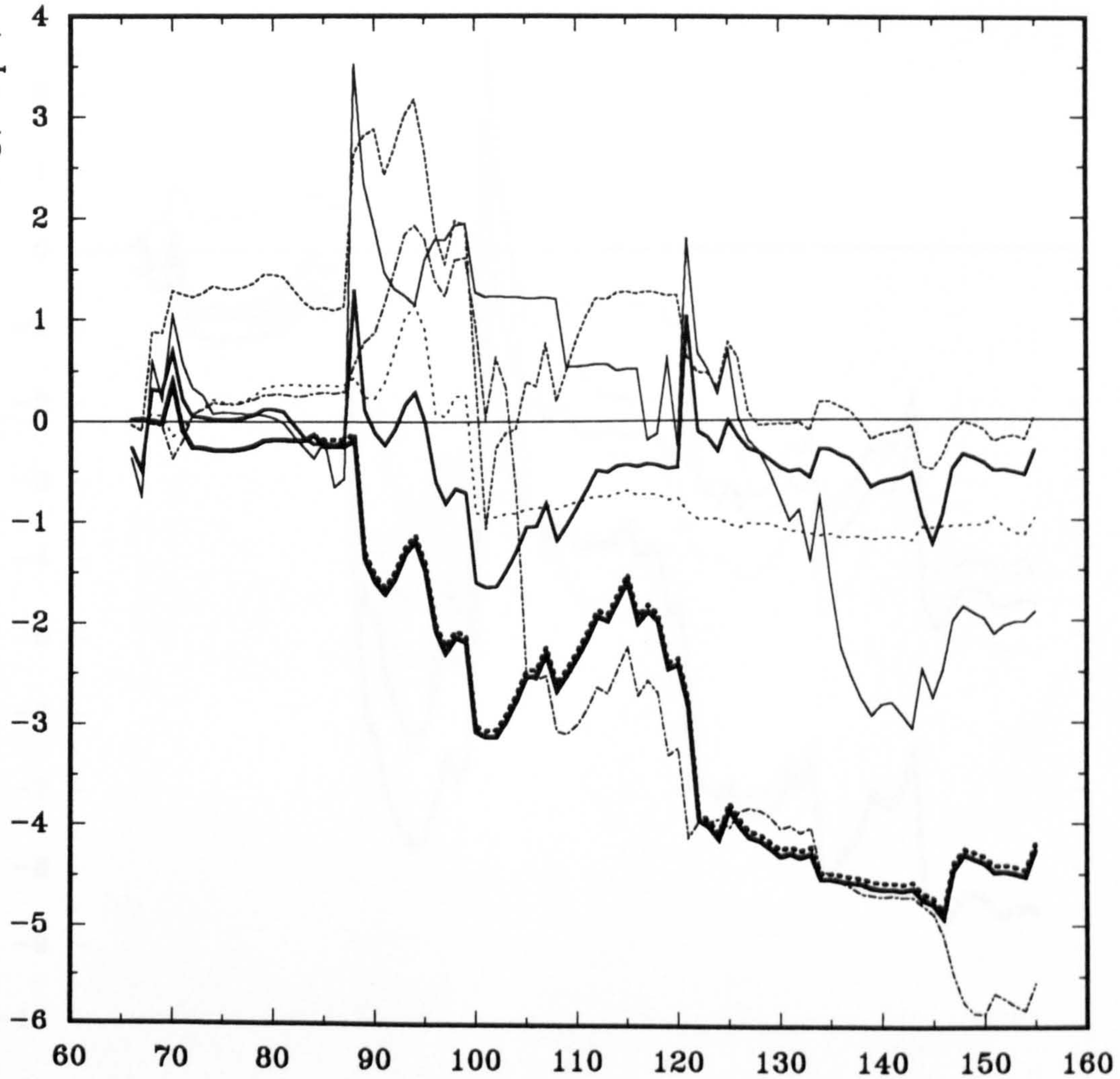


Figure B.5-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *USROFF*.

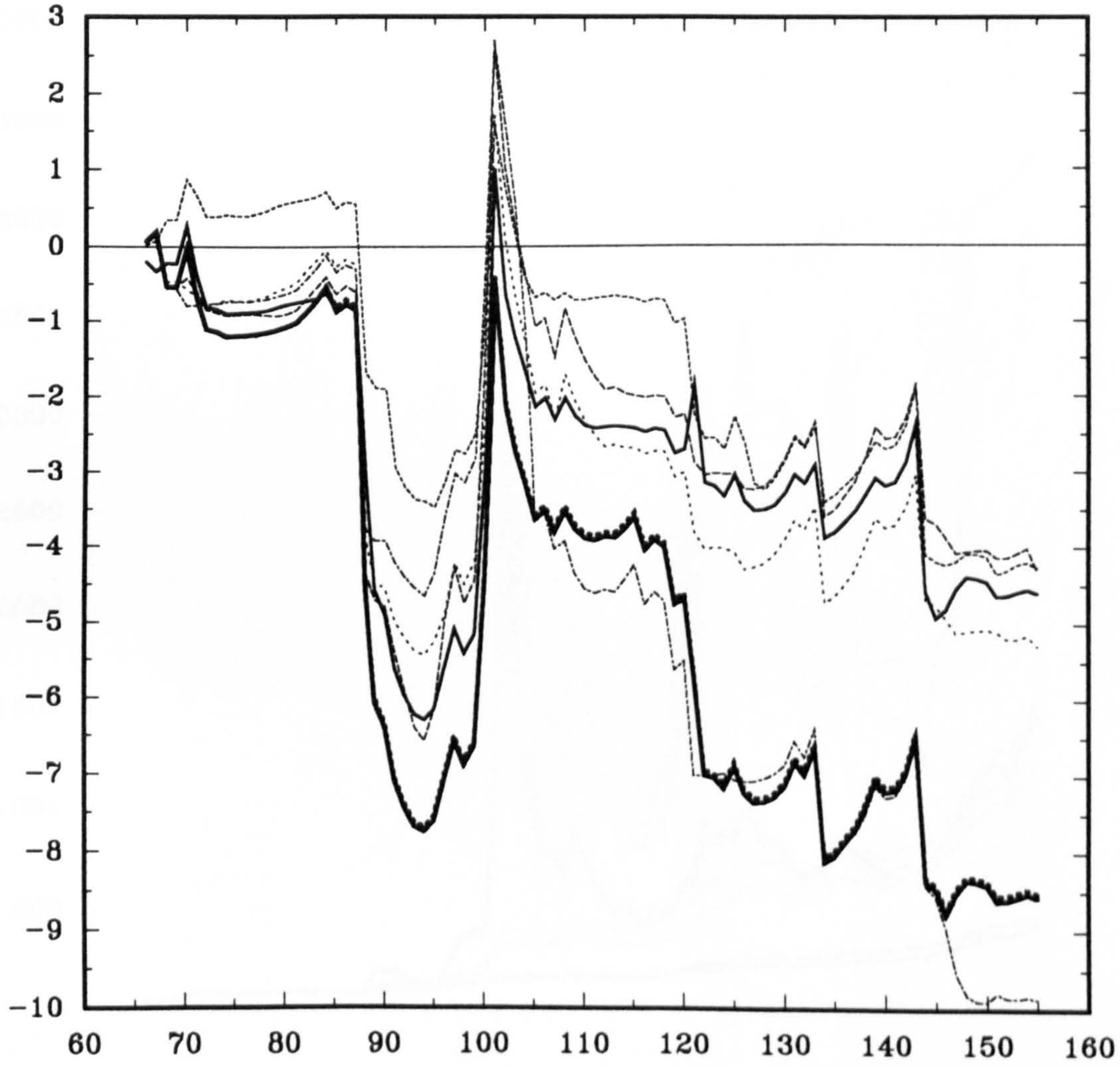


Figure B.5-10. *log(PLR)*-plots for the raw non-parametric predictors versus *MO* for data set *USROFF*.

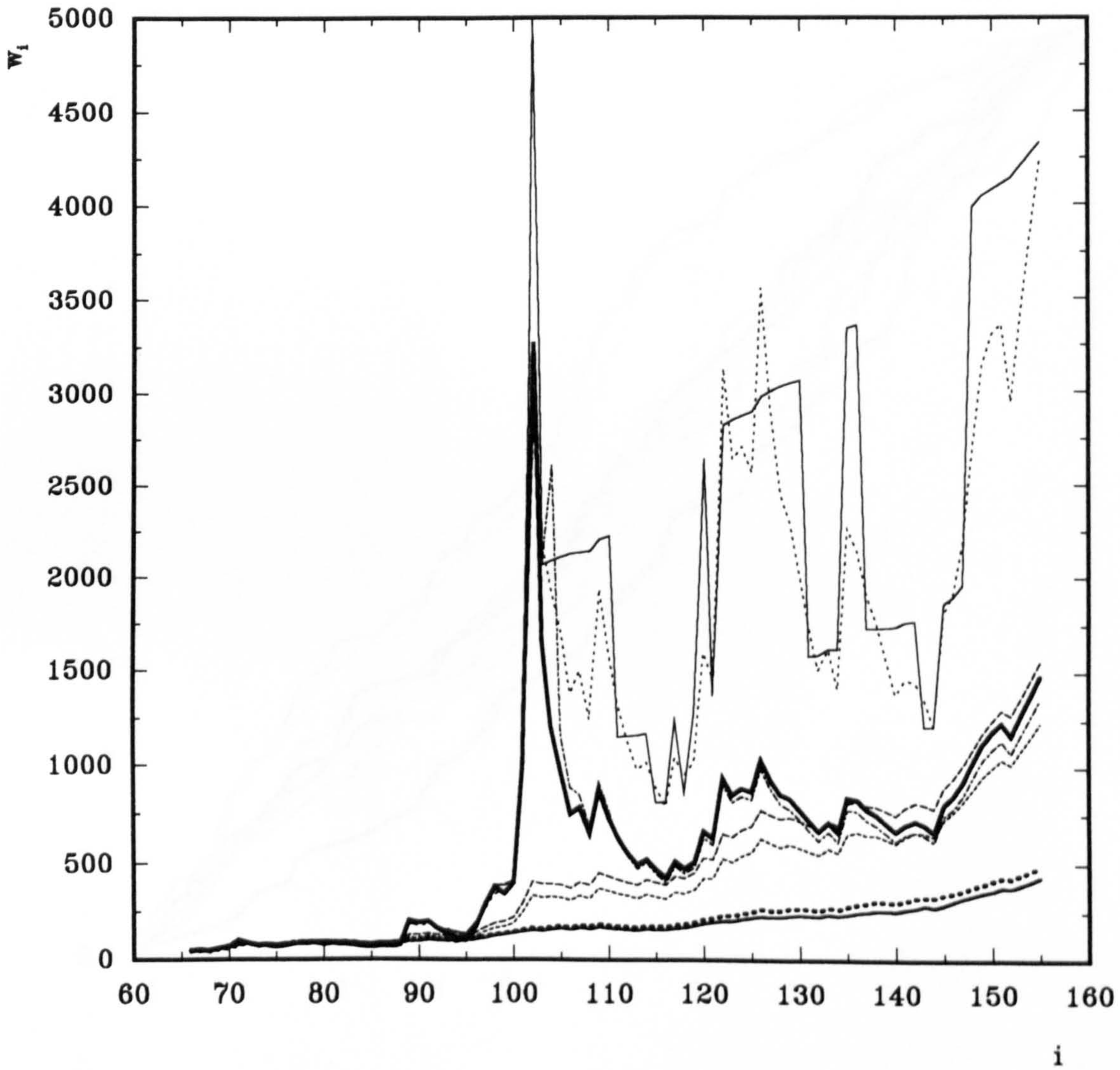


Figure B.5-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *USROFF*.

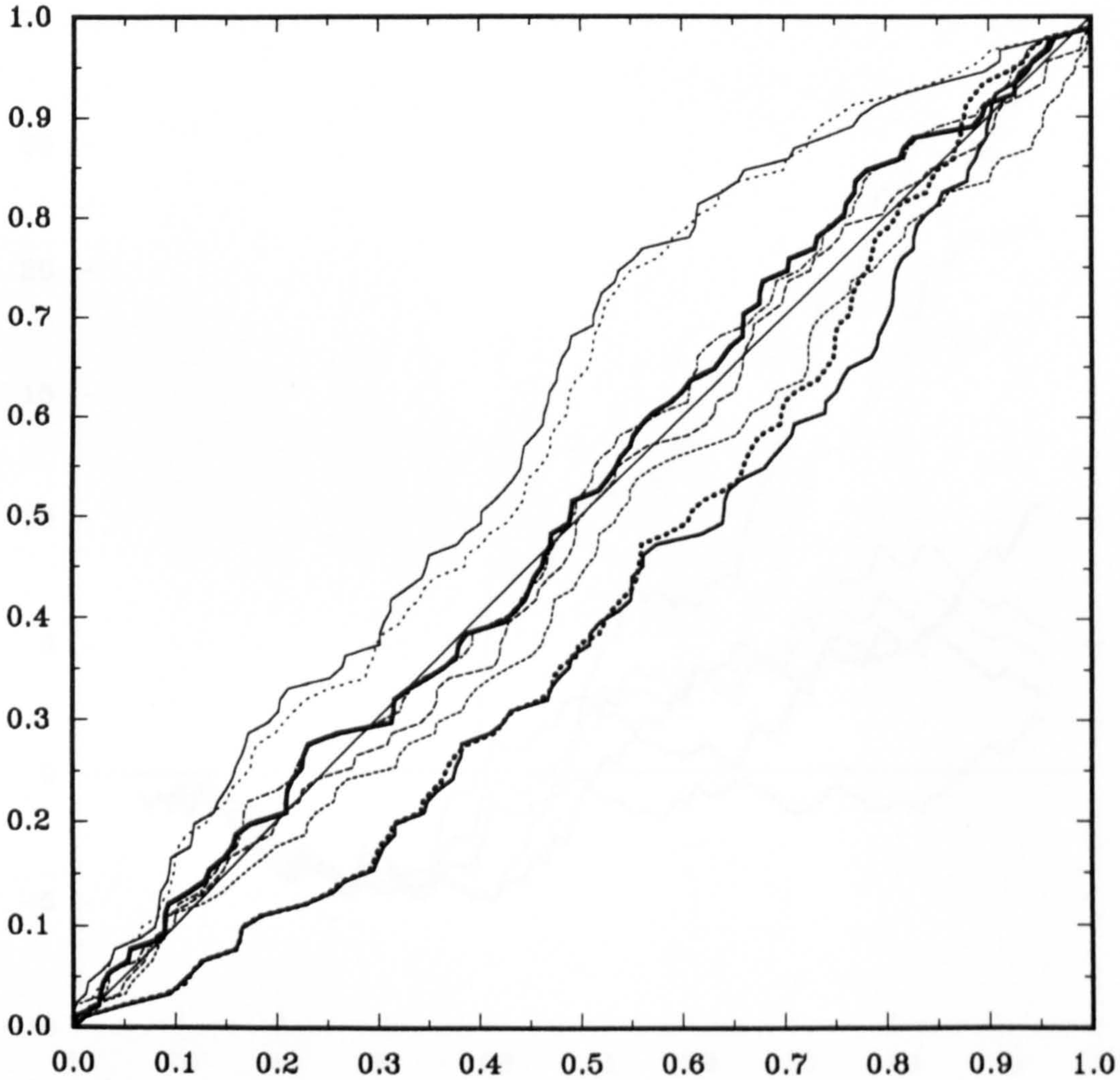


Figure B.5-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *USROFF*.

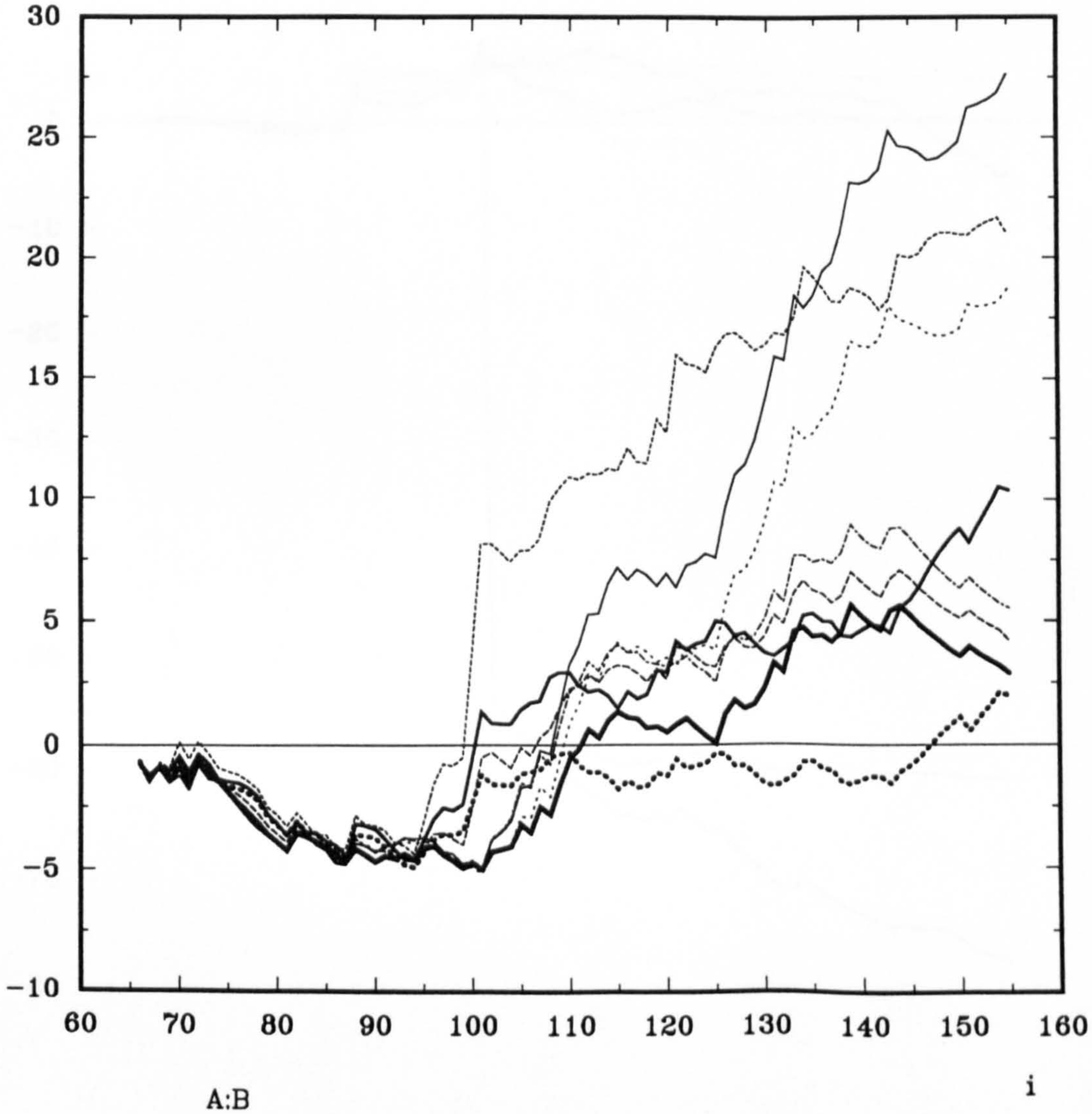


Figure B.5-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *USROFF*.

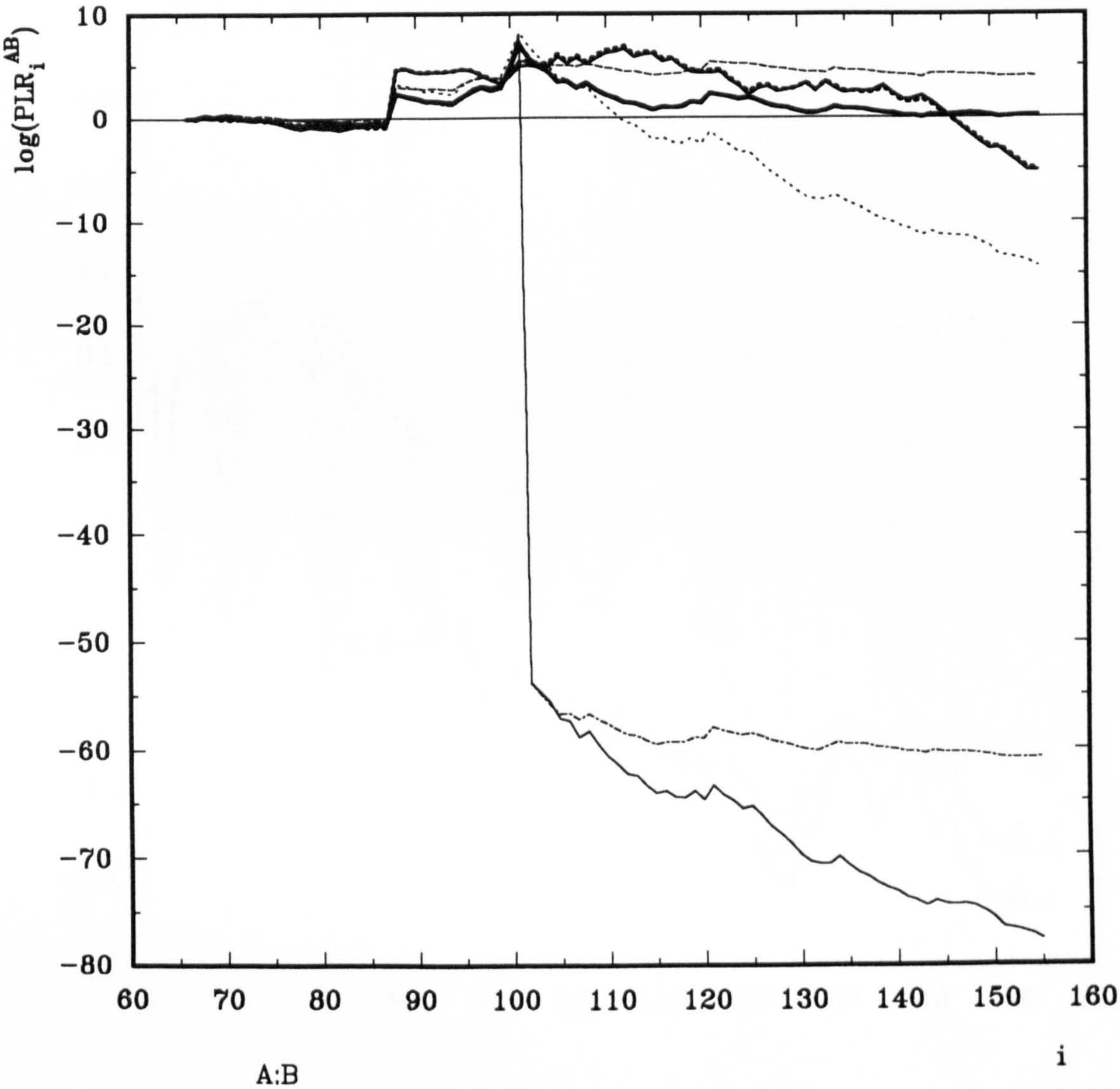


Figure B.5-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *USROFF*.

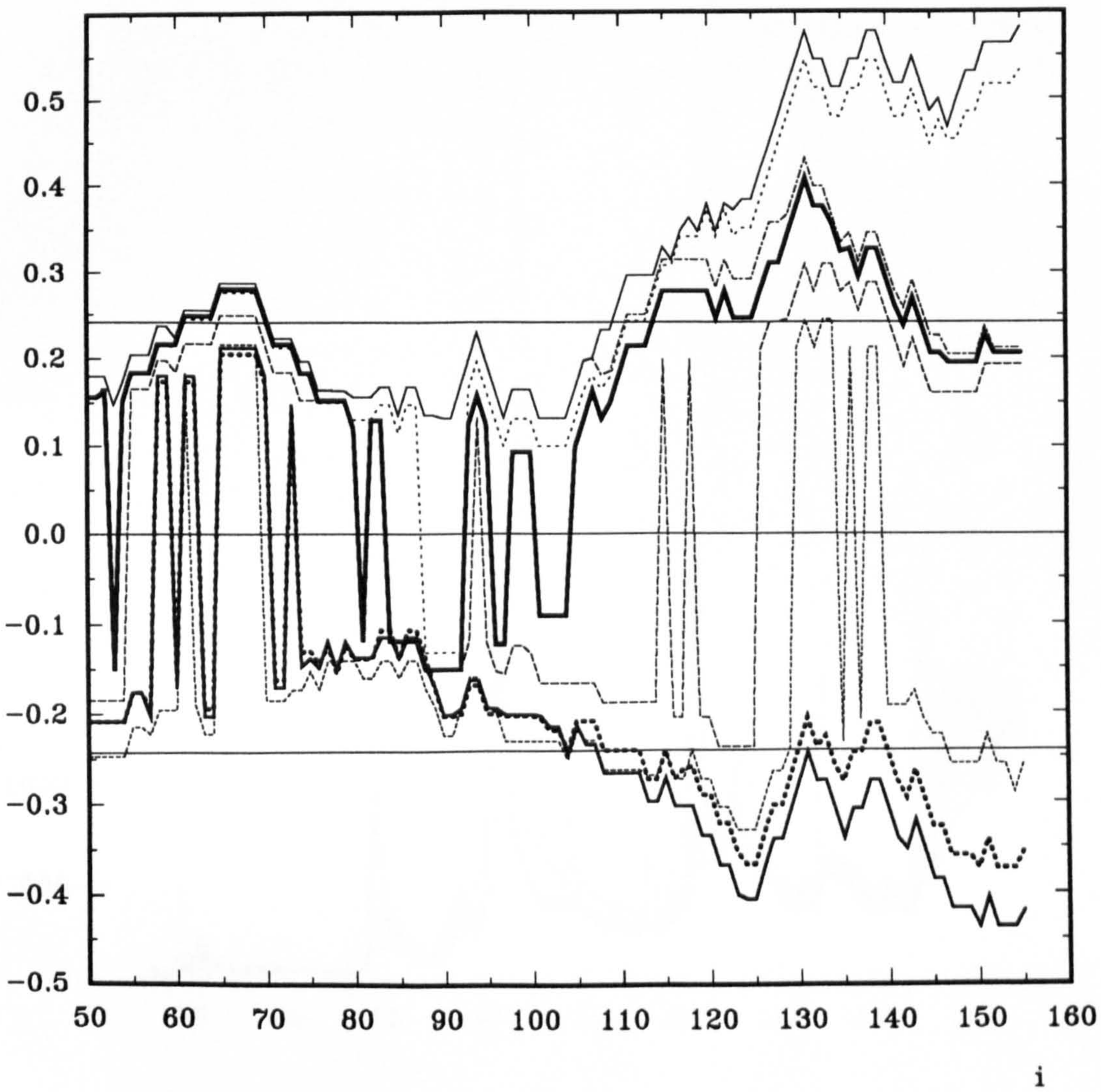


Figure B.5-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *USROFF*.

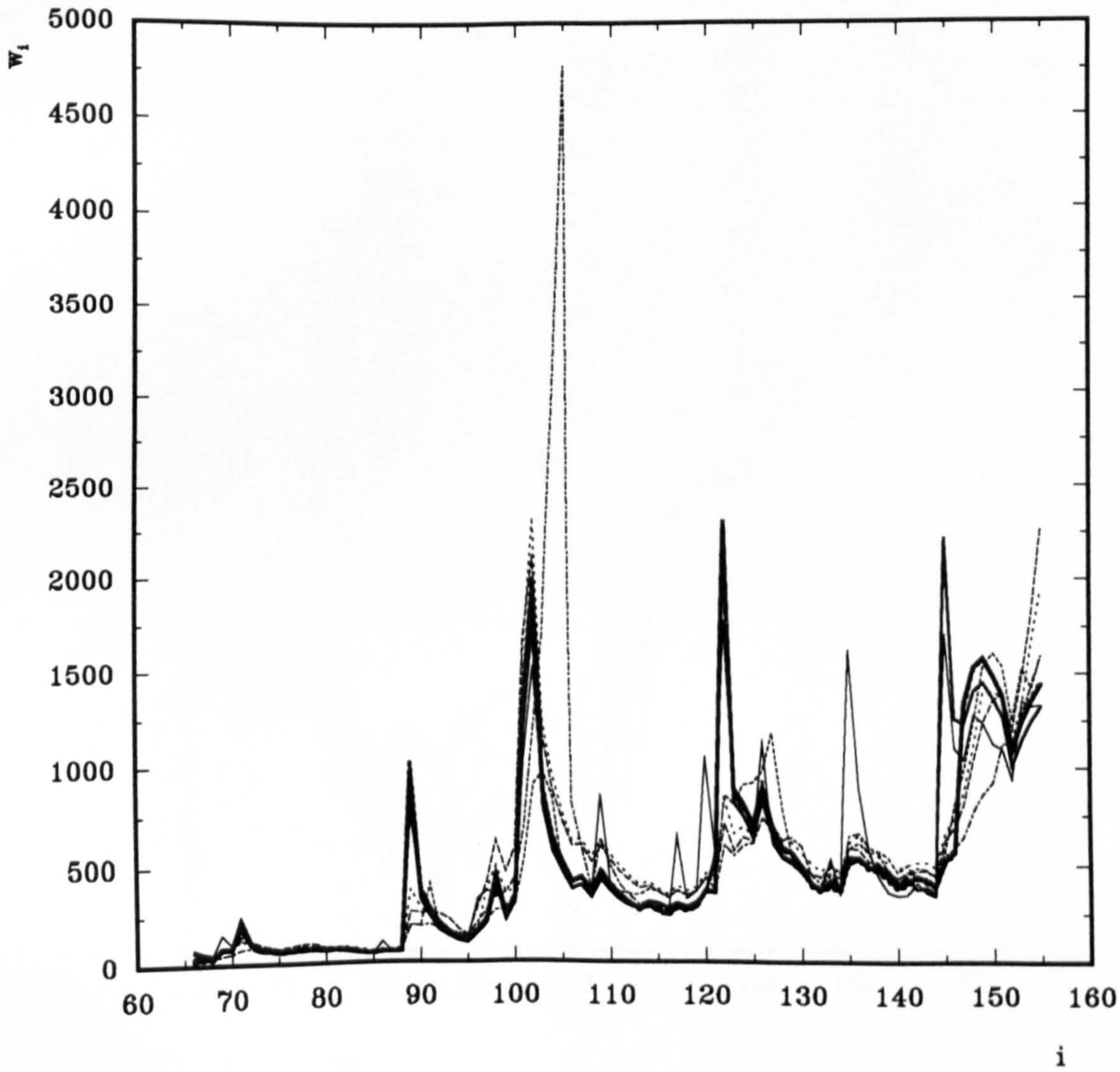


Figure B.5-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *USROFF*.

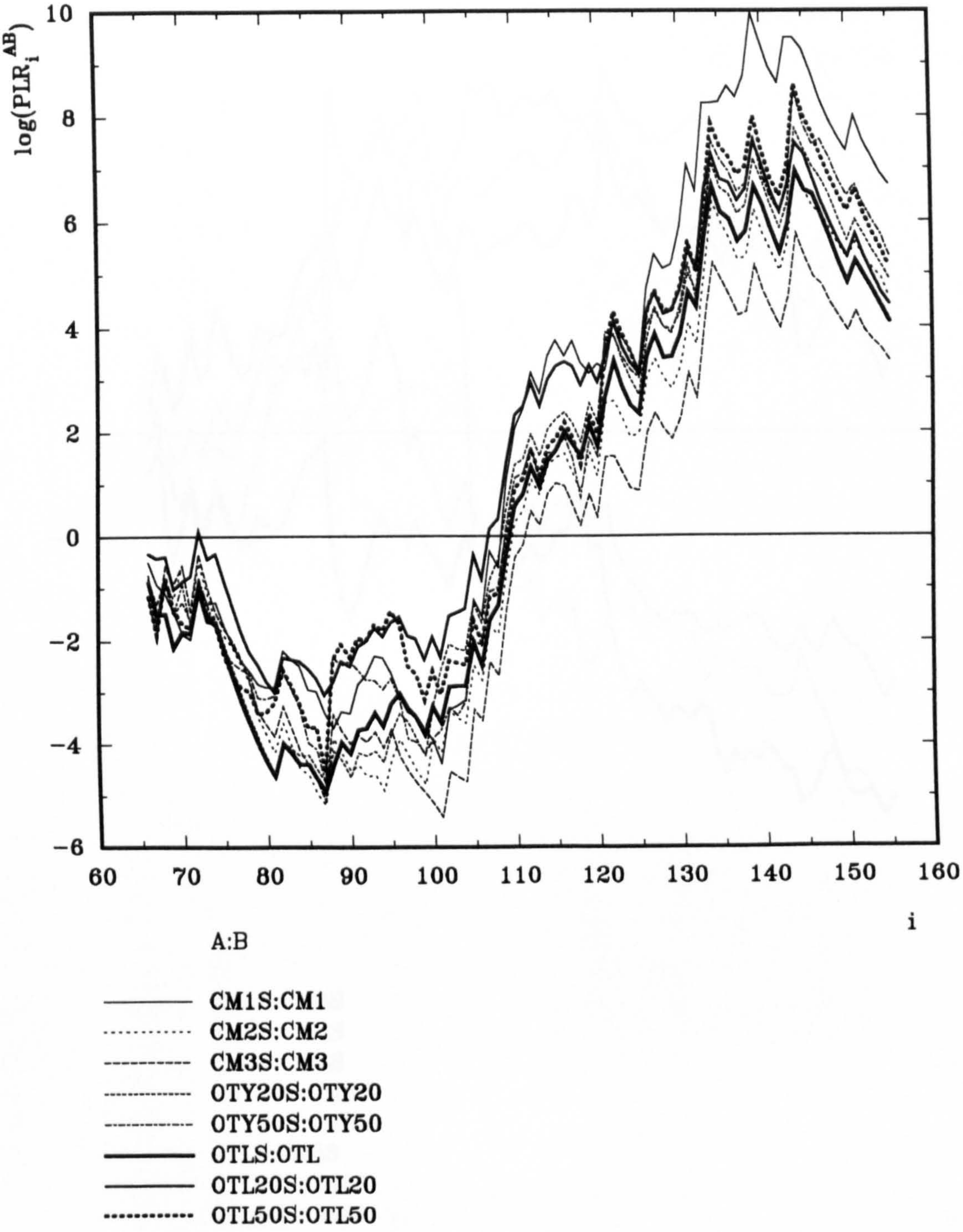


Figure B.5-17. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *USROFF*.

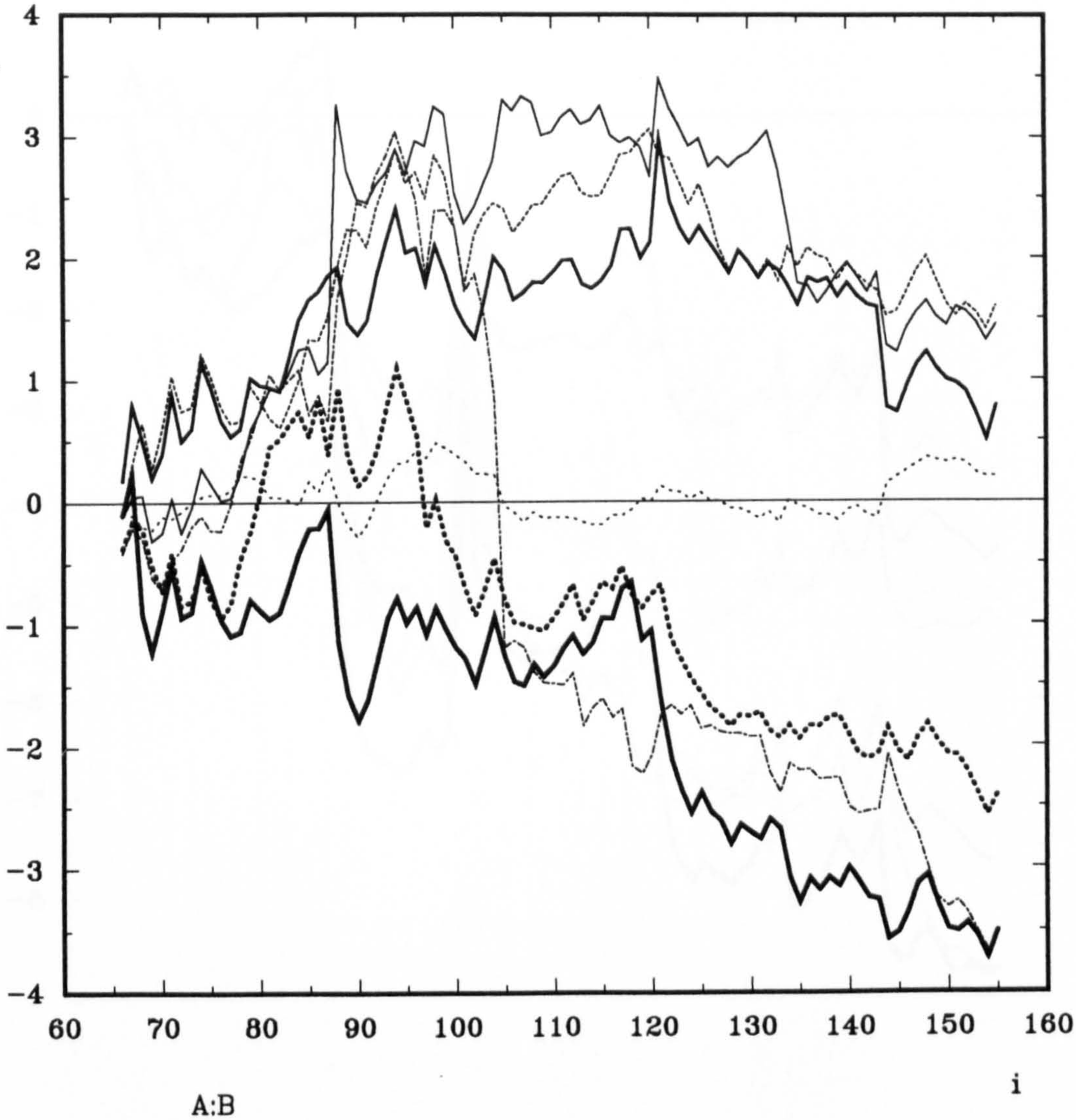


Figure B.5-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *USROFF*.

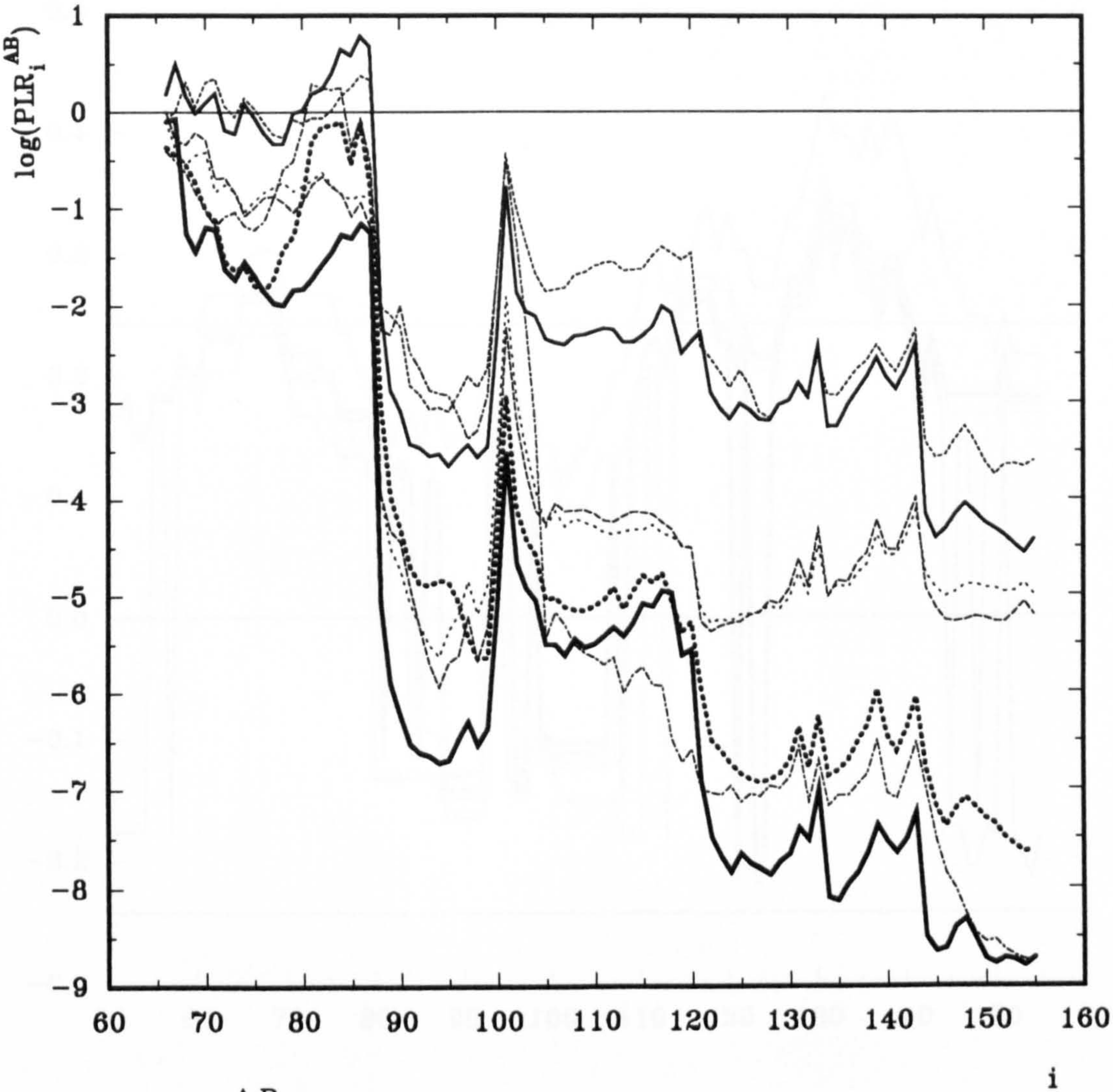


Figure B.5-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *MOS* for data set *USROFF*.

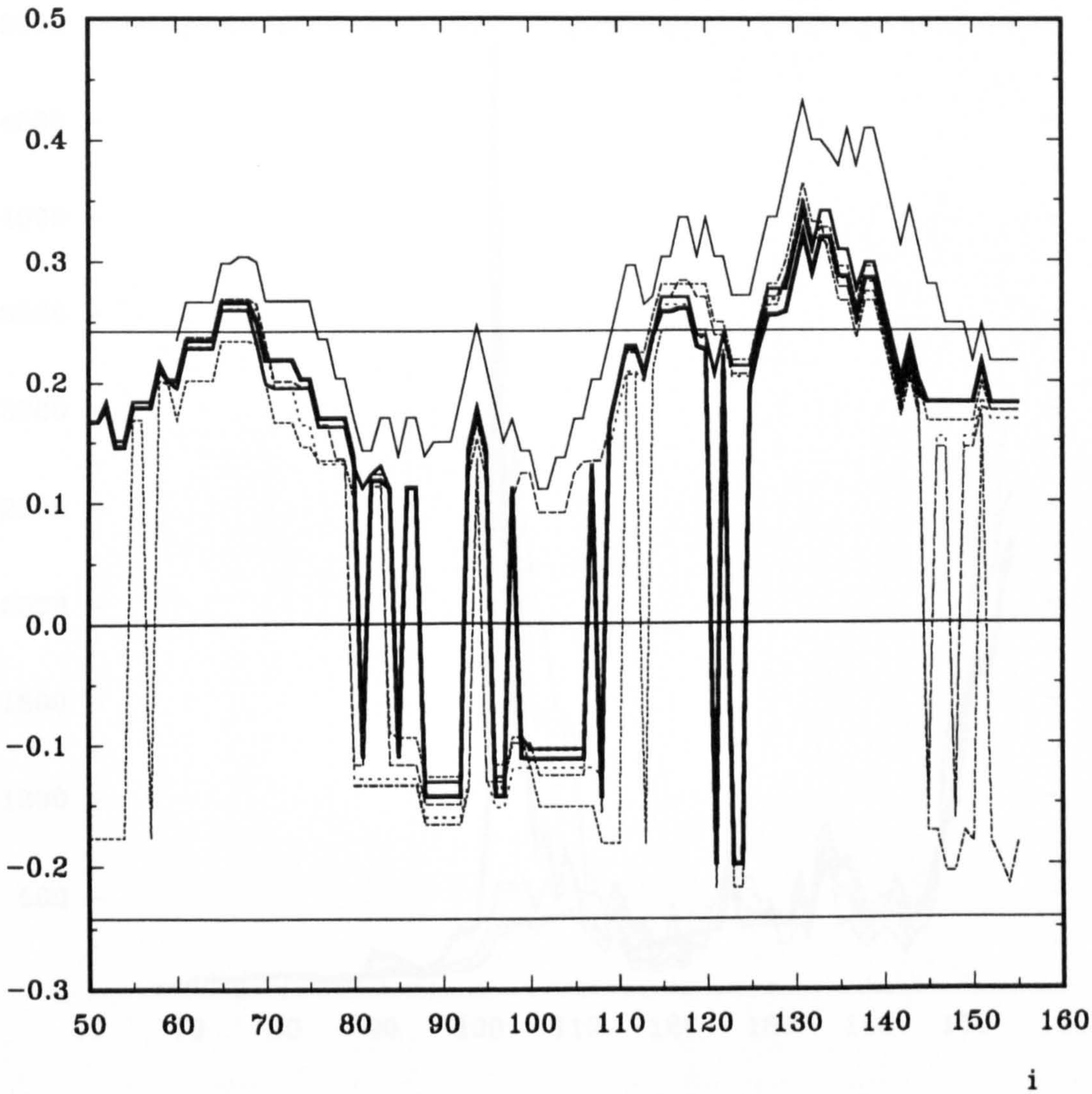


Figure B.5-20. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *USROFF*.

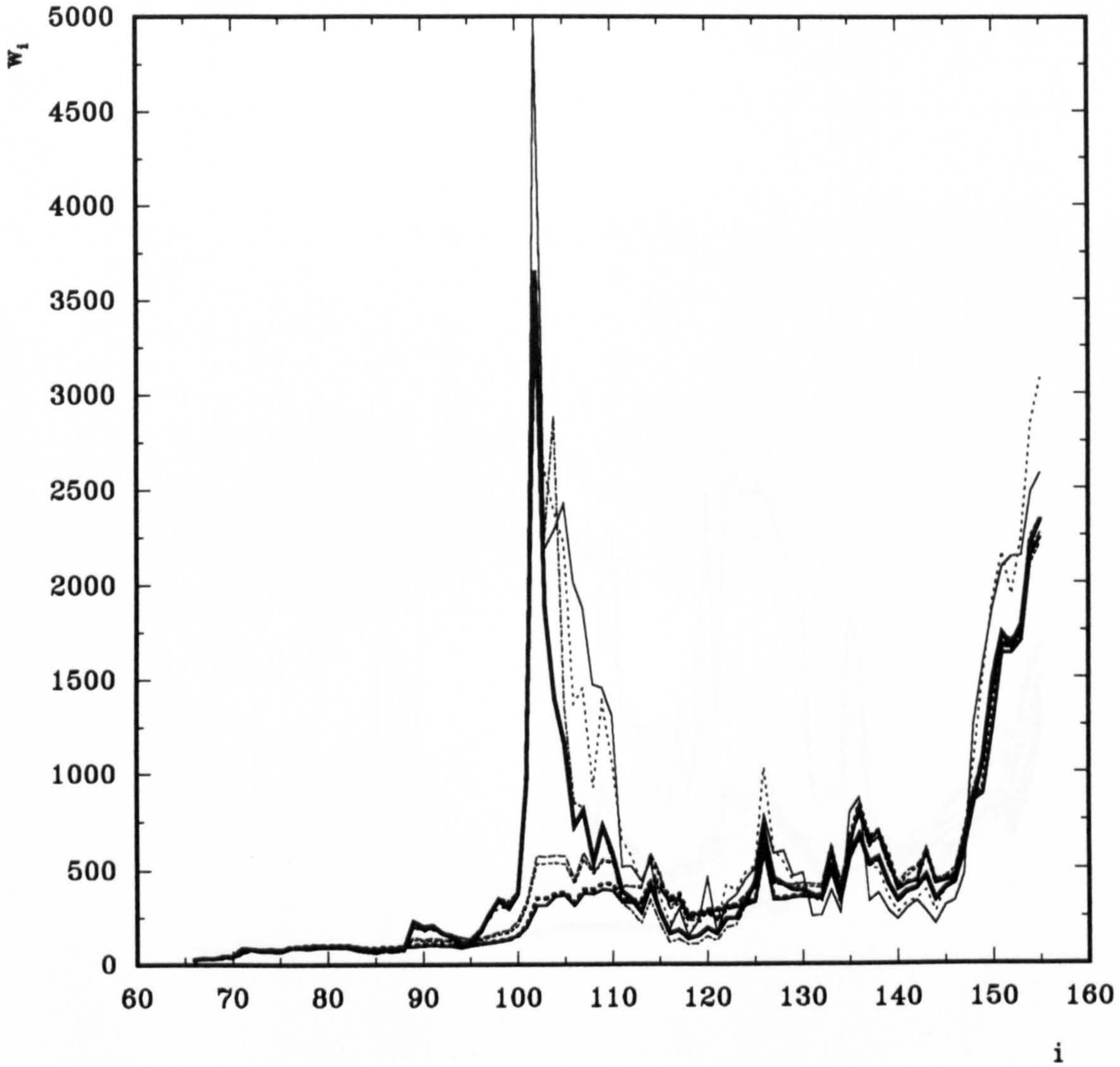


Figure B.5-21. Median predictions from the recalibrated (window = *20*) parametric predictors plotted against failure number for data set *USROFF*.

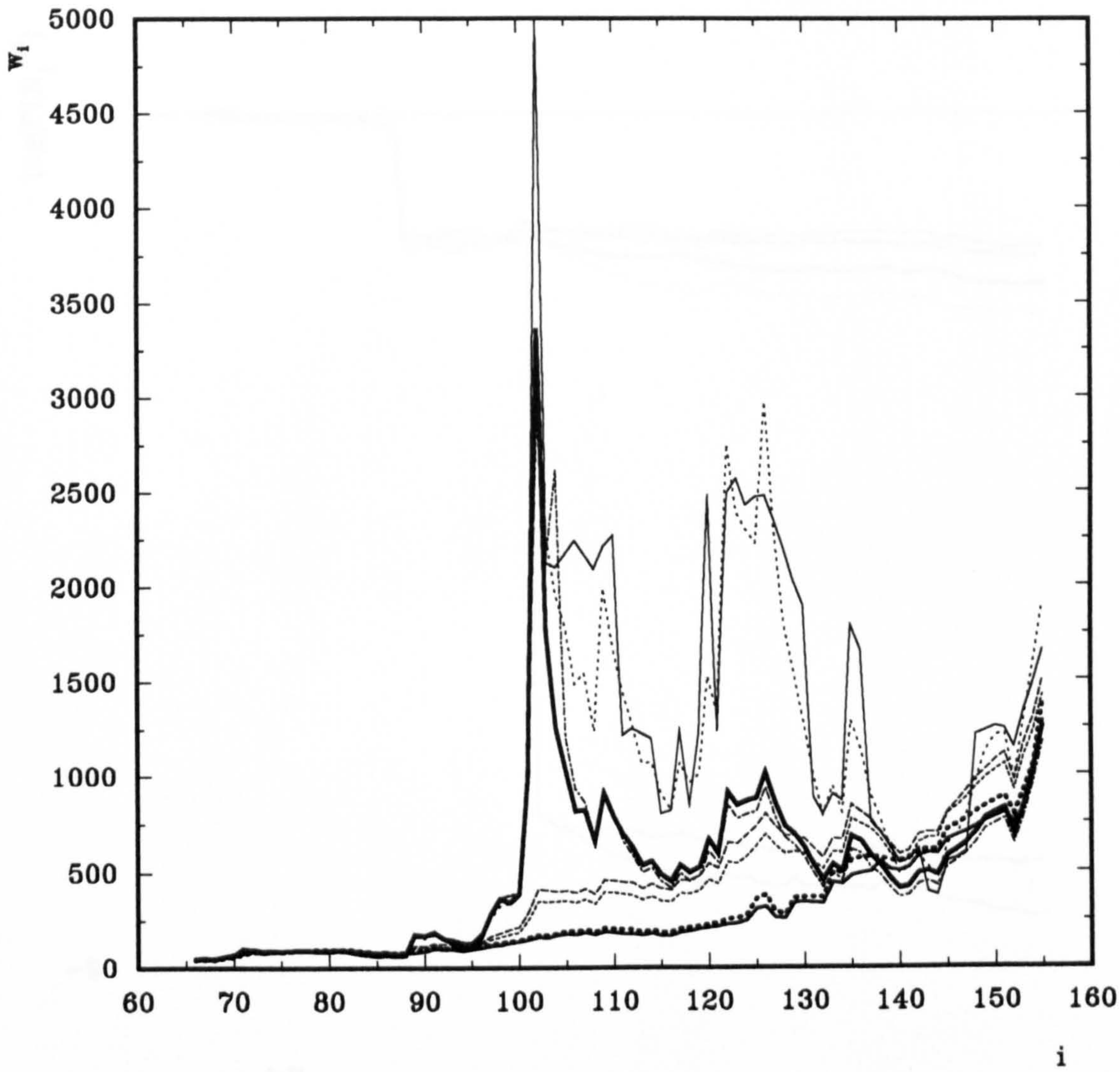


Figure B.5-22. Median predictions from the recalibrated (window = *50*) parametric predictors plotted against failure number for data set *USROFF*.

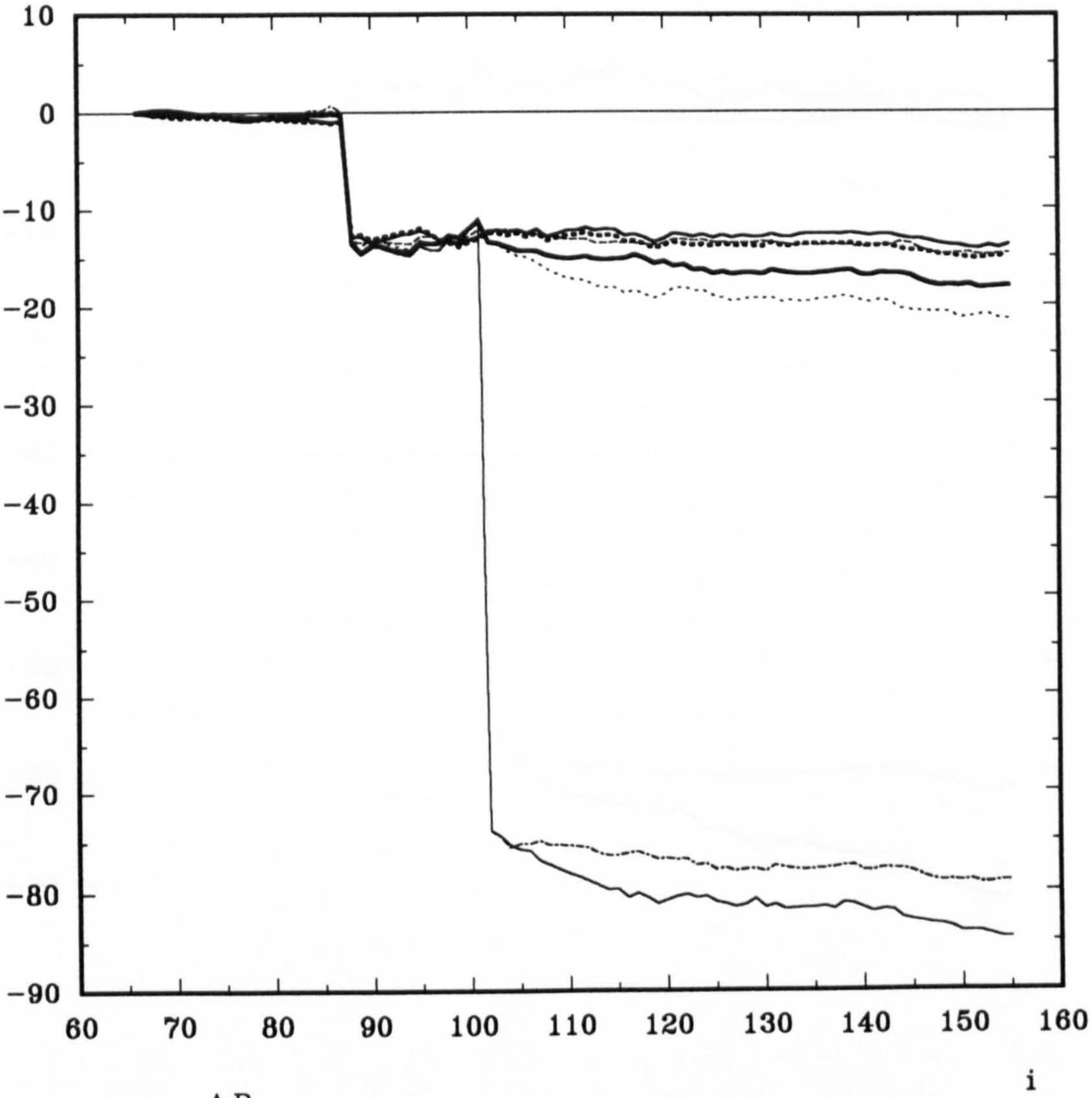


Figure B.5-23. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus *DUS20* for data set *USROFF*.

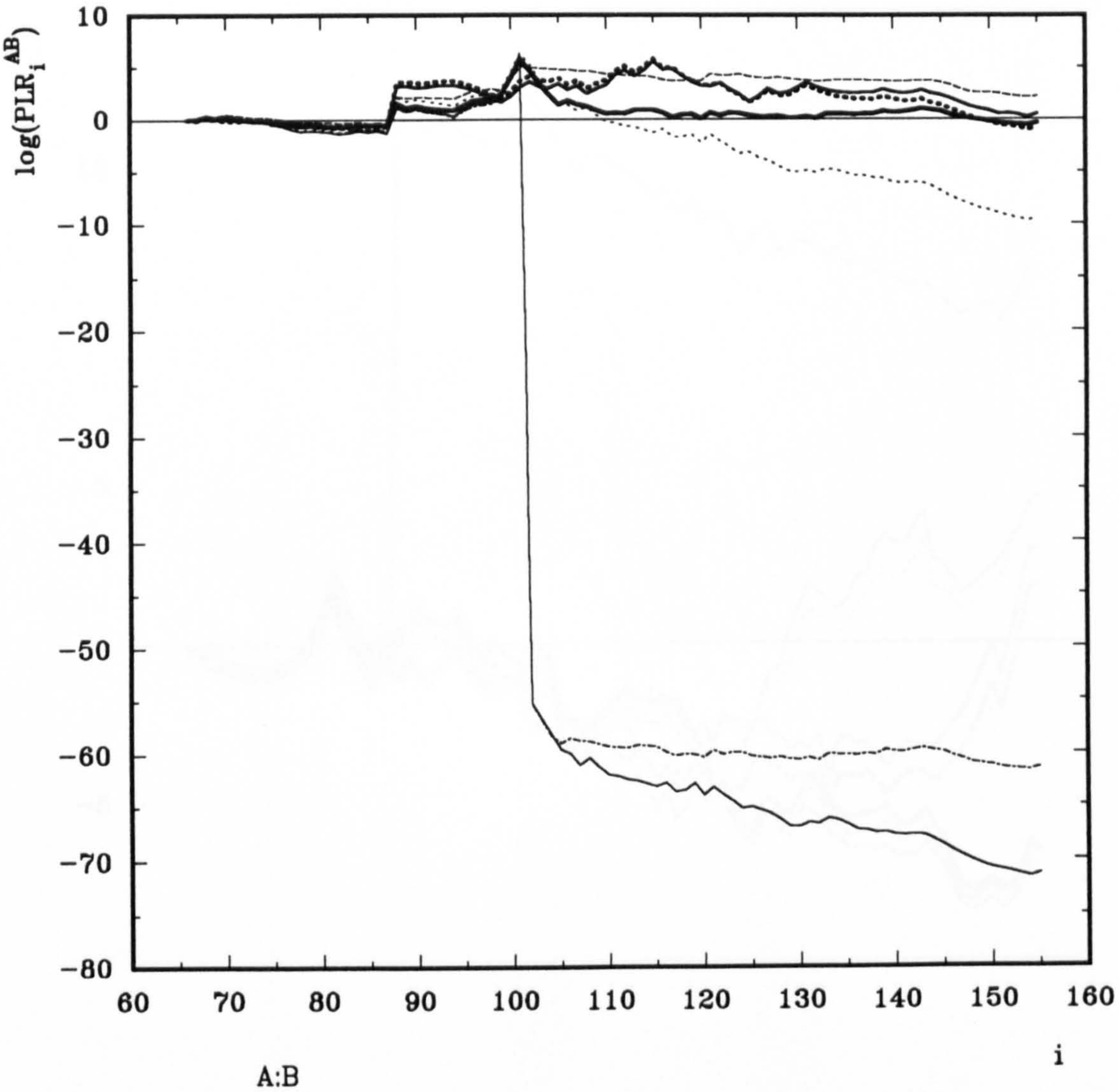


Figure B.5-24. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus *DUS50* for data set *USROFF*.

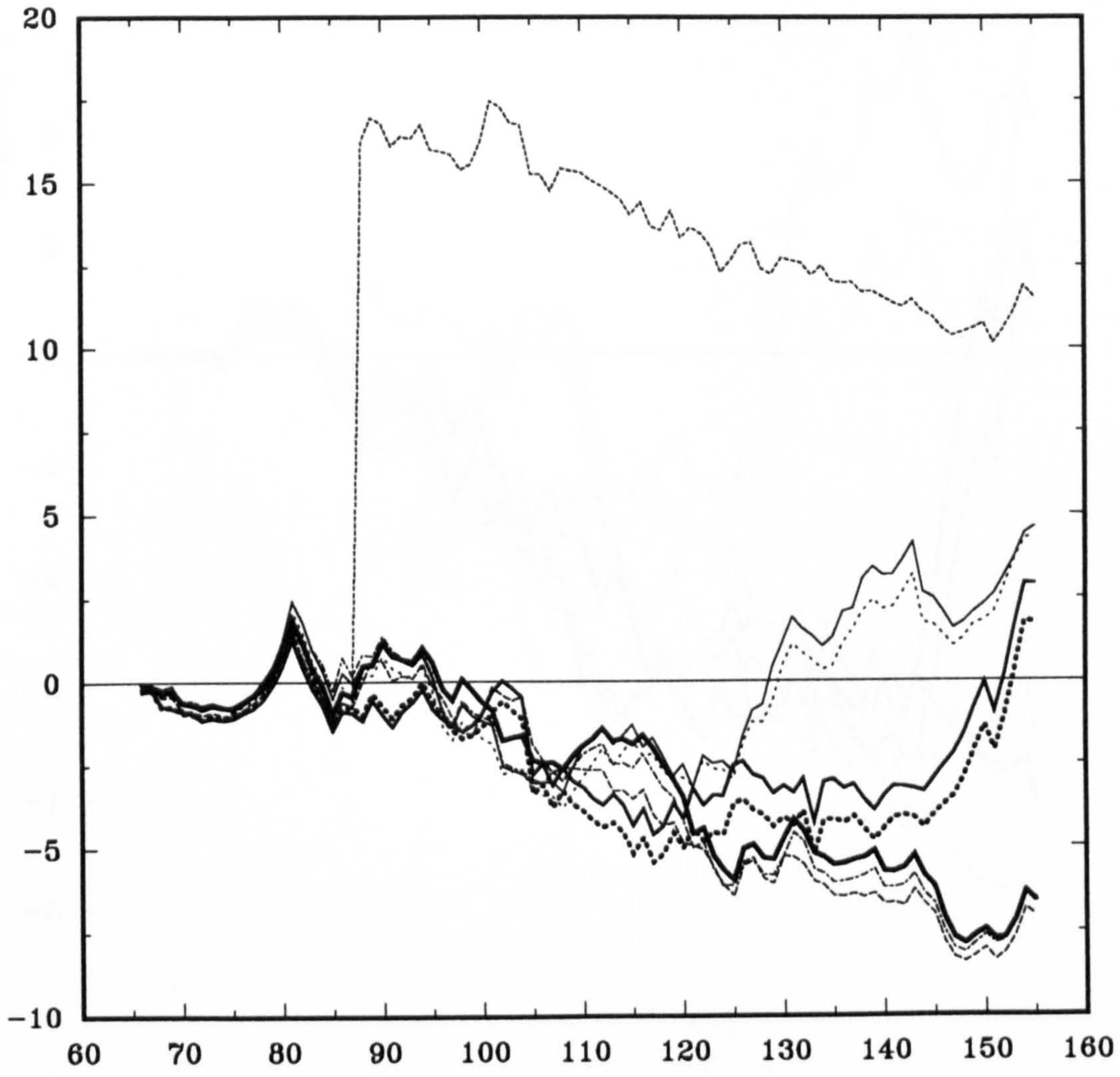


Figure B.5-25. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USROFF*.

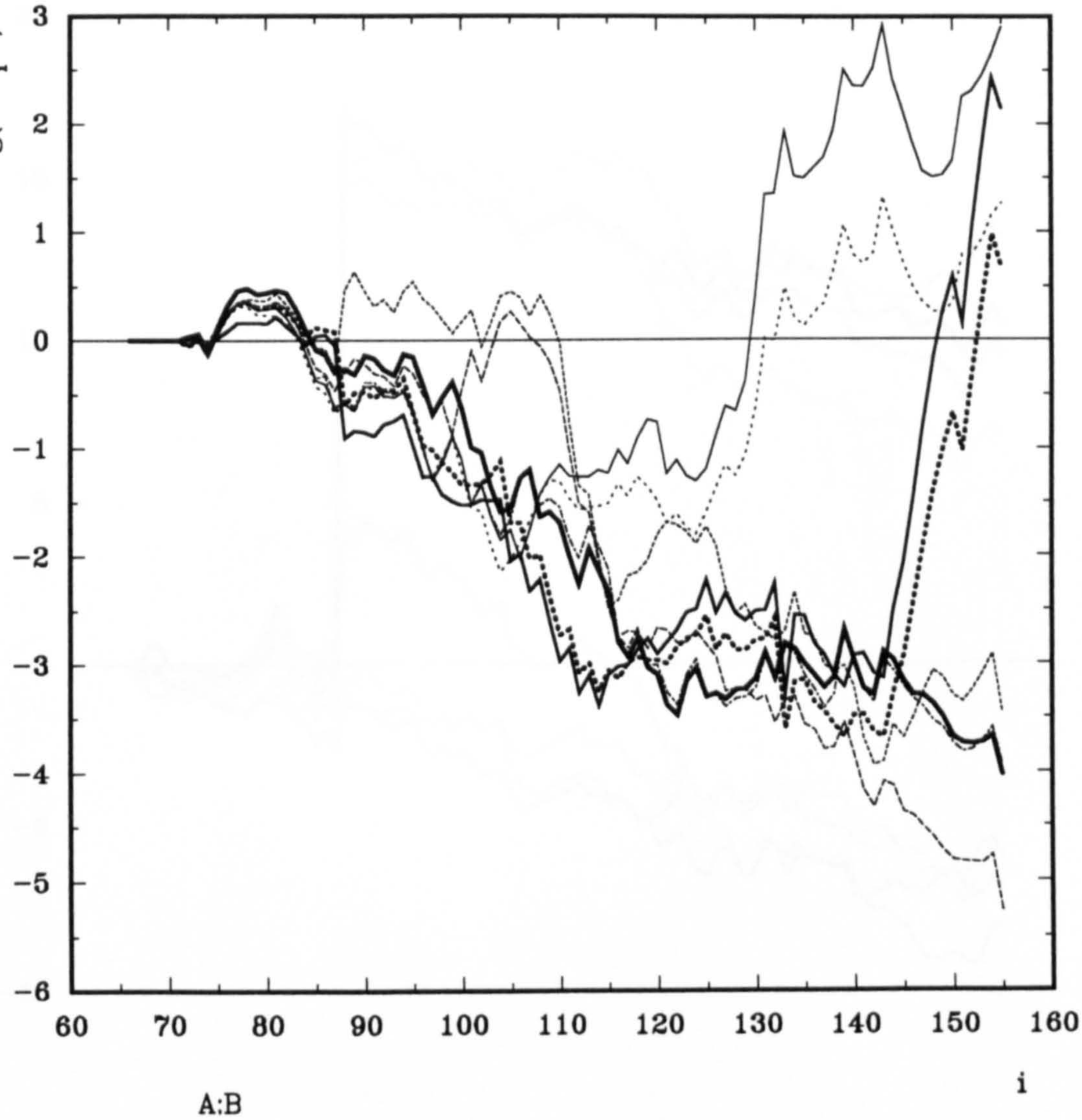


Figure B.5-26. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USROFF*.

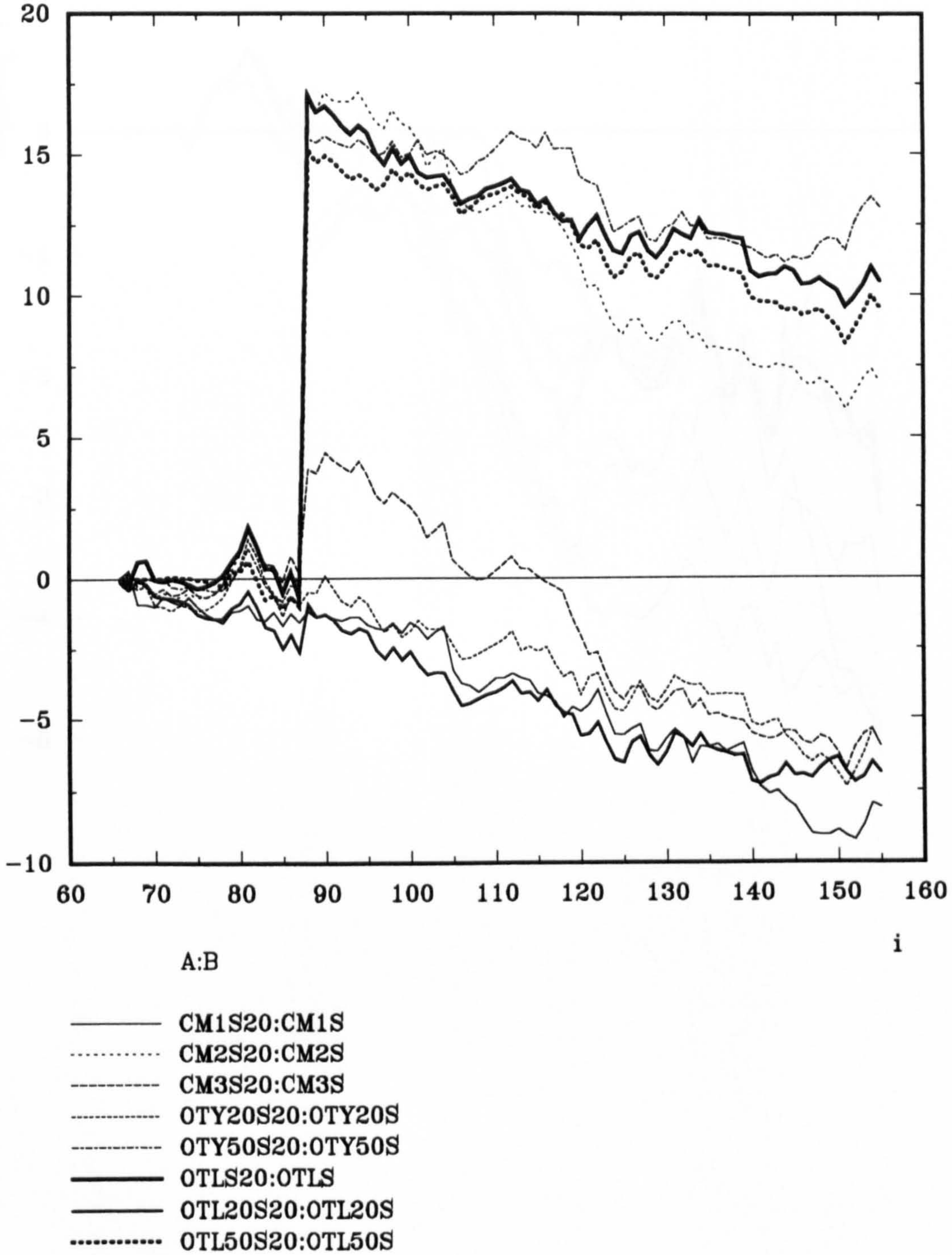


Figure B.5-27. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USROFF*.

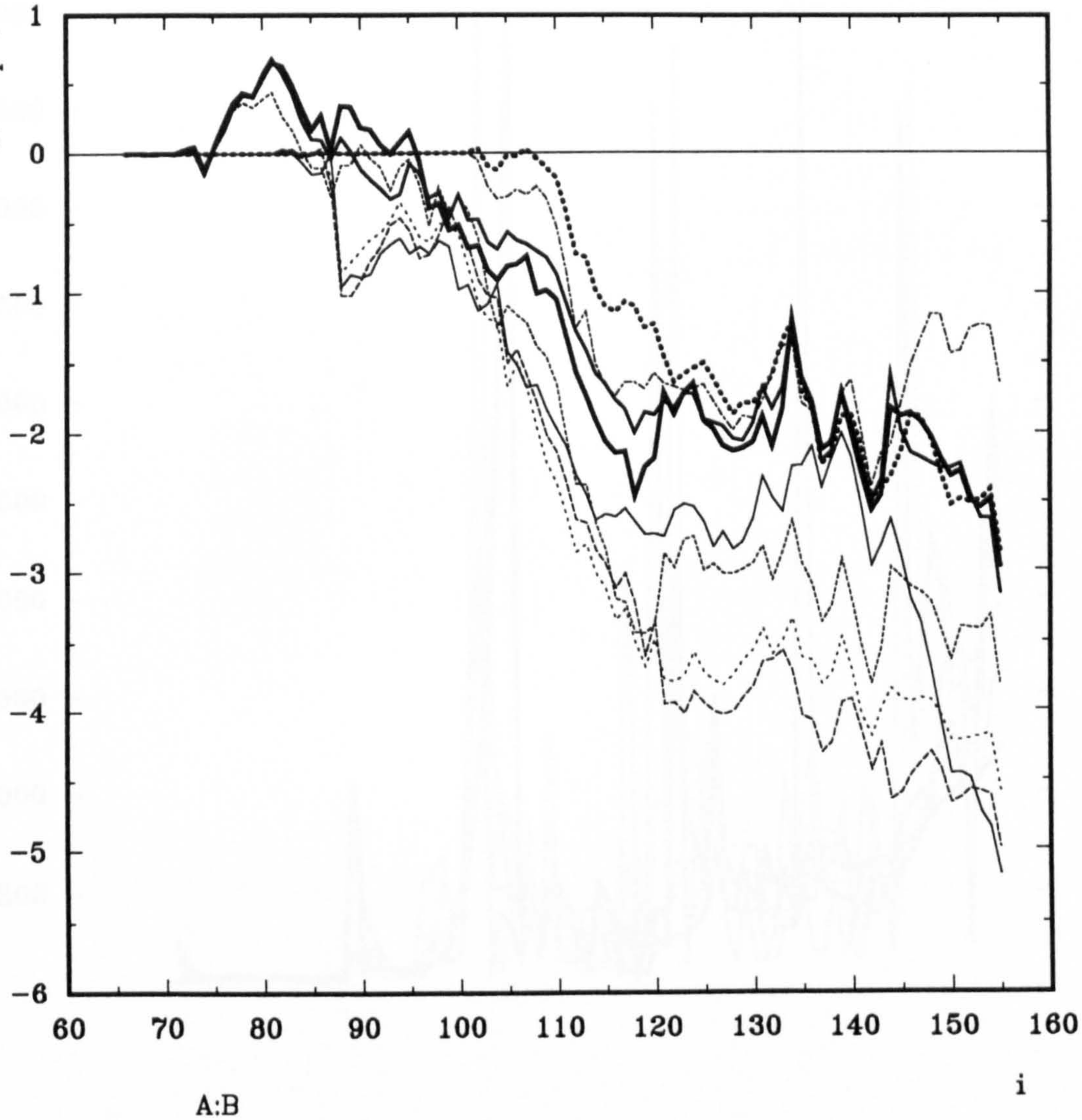


Figure B.5-28. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USROFF*.

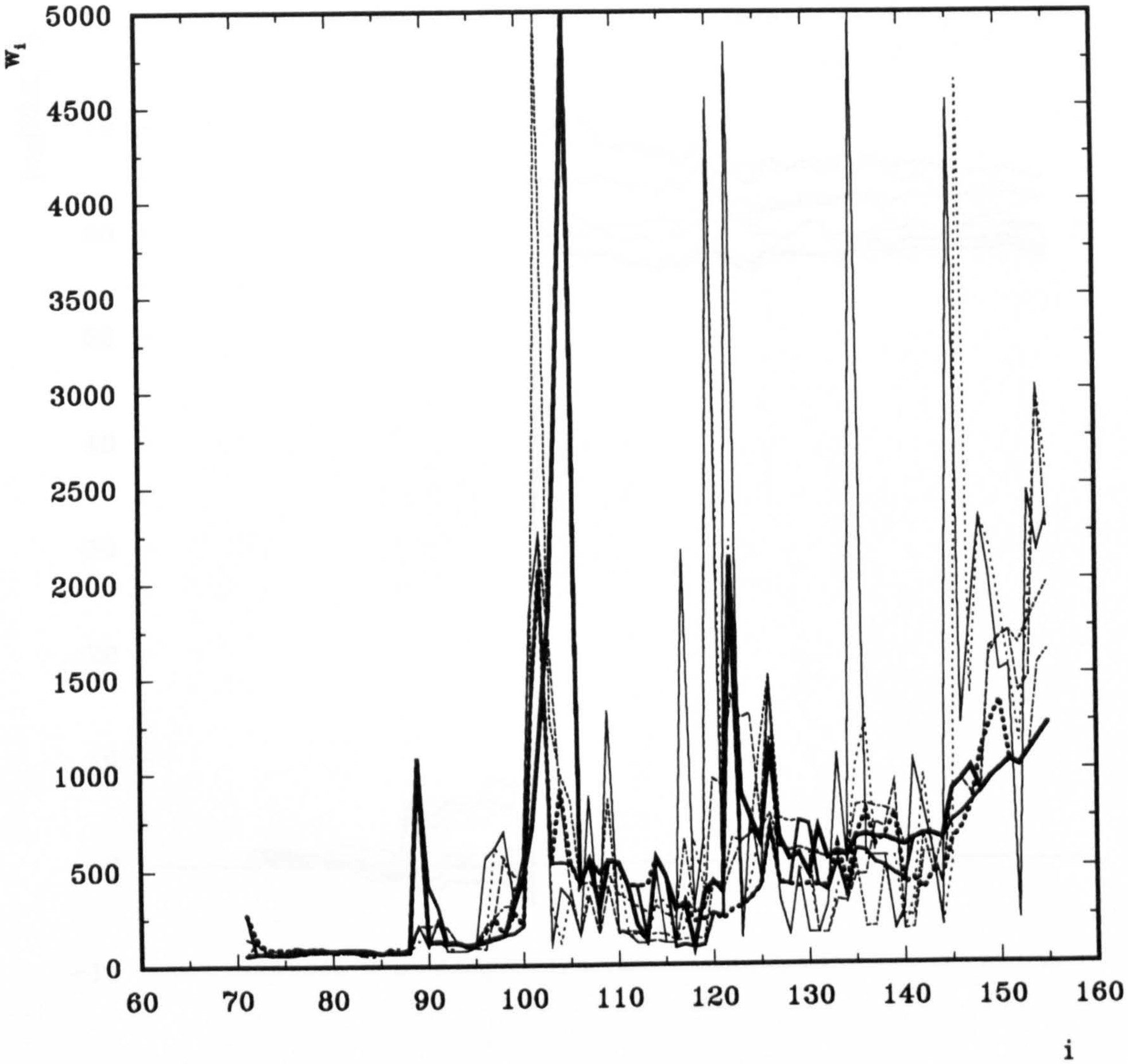


Figure B.5-29. Median predictions from the meta-predictors plotted against failure number for data set *USROFF*.

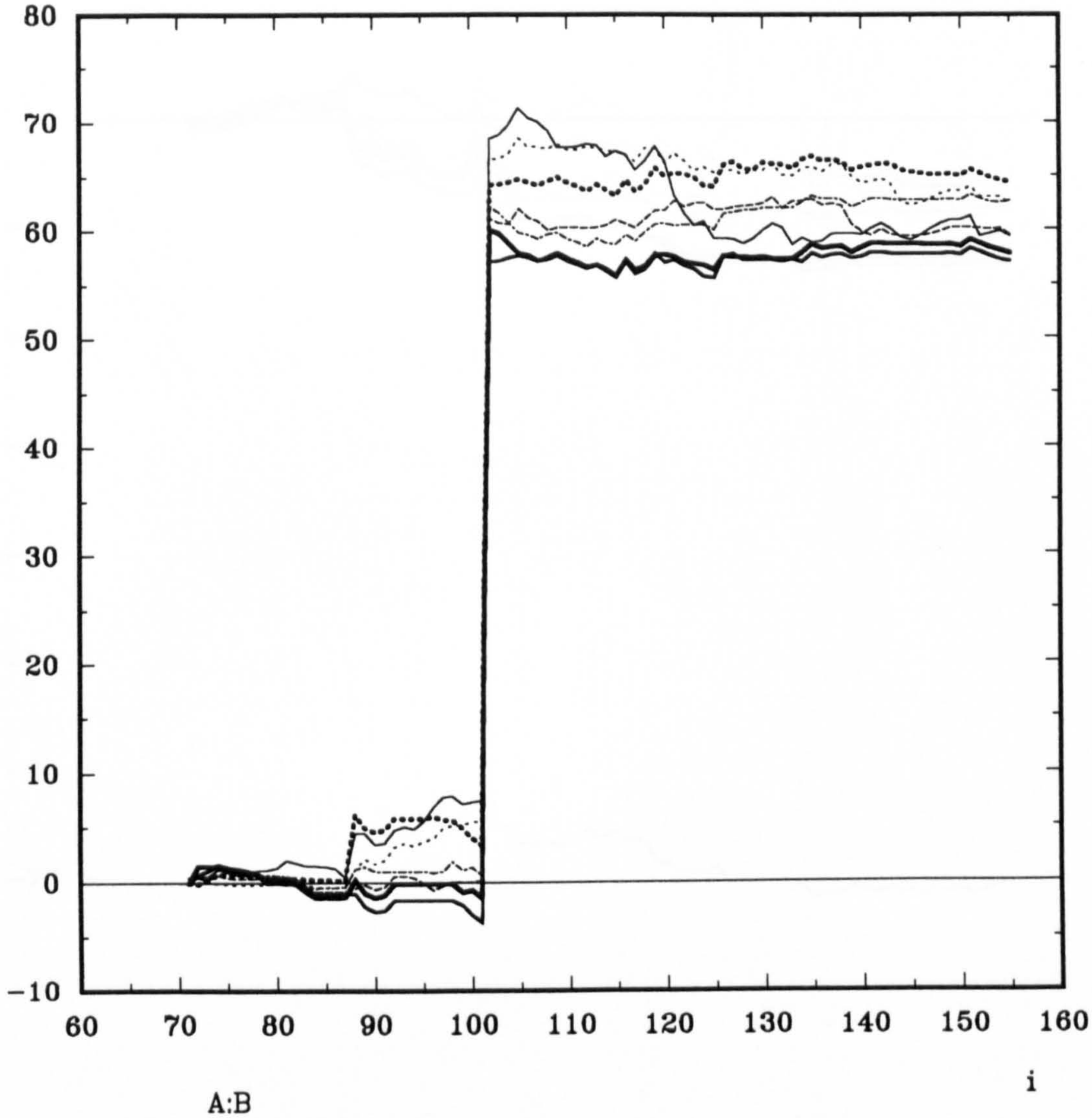


Figure B.5-30. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *USROFF*.

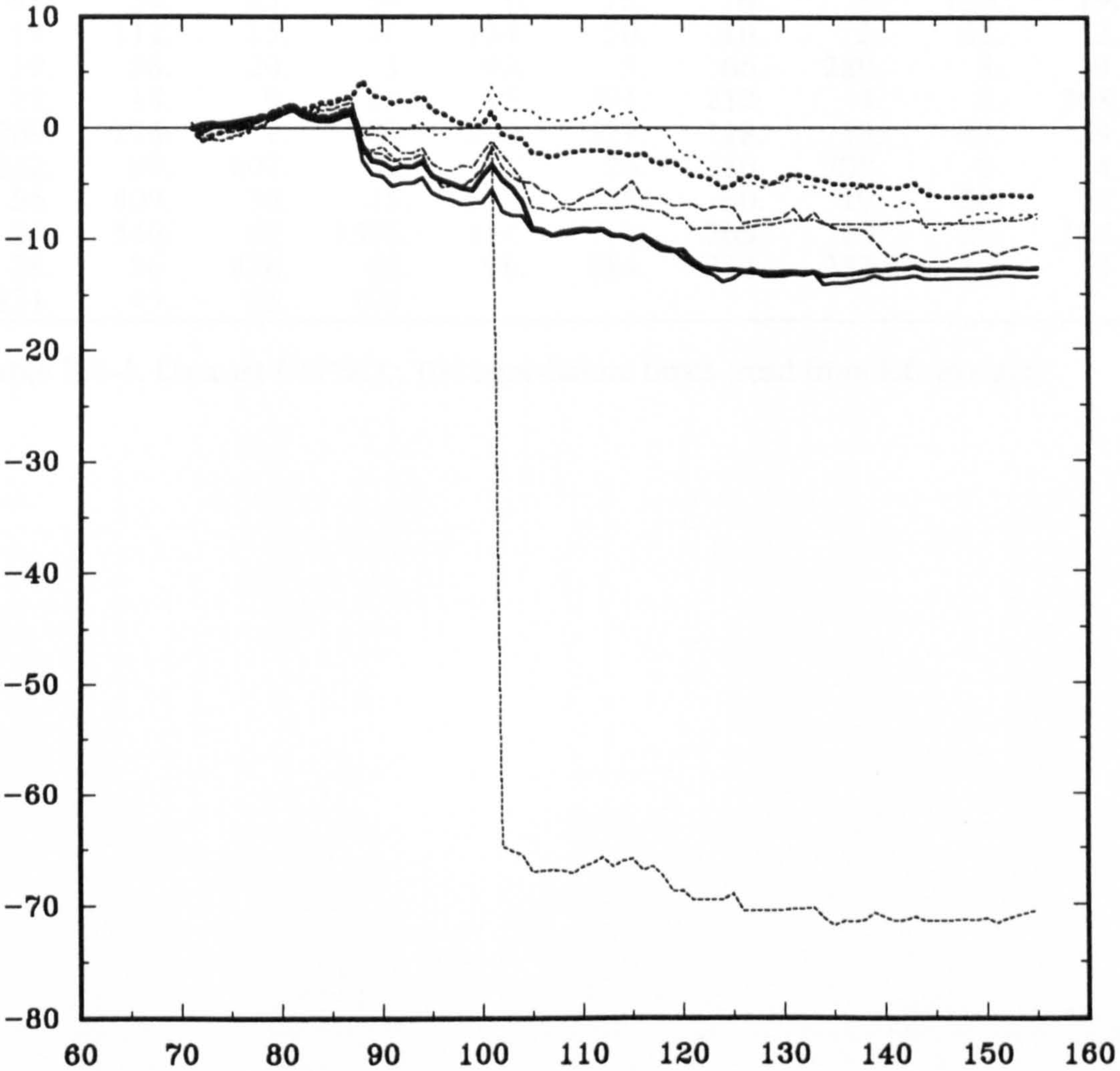


Figure B.5-31. *log(PLR)*-plots for the meta-predictors versus *MOS* for data set *USROFF*.

B.6 Data Set USPSCL

33.	9.	4.	66.	0.5	18.	149.	14.	15.	50.
81.	34.	85.	54.	3.	15.	6.	8.	130.	19.
19.	112.	15.	16.	154.	50.	10.	2.	22.	53.
19.	58.	20.	3.	92.	5.	66.	289.	3.	9.
12.	18.	9.	75.	15.	291.	212.	4.	5.	308.
269.	276.	1.	400.	294.	227.	118.	13.	47.	89.
242.	99.	607.	83.	2.	26.	586.	708.	6.	4.
55.	409.	36.	15.	573.	583.	60.	19.	20.	79.
24.	540.	52.	1596.	314.	1.	763.	10.	20.	144.
28.	56.	476.	65.	98.	884.	212.	287.	53.	3.
831.	43.	55.	109.						

Table B.6-1. Data set *USPSCL*; 104 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	B	F	A	D	A	A	A	A	A	A	A	A
GO	B	F	A	D	A	A	A	A	A	A	A	A
MO	C	F	A	C	A	A	A	A	A	A	A	A
DU	B	E	A	A	A	A	A	A	A	A	A	A
LM	A	F	A	A	A	A	A	A	A	A	A	A
LNHPP	B	F	A	B	A	A	A	A	A	A	A	A
LV	A	B	A	A	A	A	A	A	A	A	A	A
KL	A	A	A	A	A	A	A	A	A	A	A	A
CM1	B	F	A	A	A	A	A	A	A	A	A	A
CM2	B	F	A	A	A	A	A	A	A	A	A	A
CM3	A	F	A	A	A	A	A	A	A	A	A	A
OTY20	B	F	A	A	A	A	A	A	A	A	A	A
OTY50	A	F	A	A	A	A	A	A	A	A	A	A
OTL	B	F	A	A	A	A	A	A	A	A	A	A
OTL20	C	F	A	A	A	A	A	A	A	A	A	A
OTL50	B	F	A	A	A	A	A	A	A	A	A	A

Table B.6-2.1. *u*- and *y*-plot significance levels for data set *USPSCL* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Table B.6-2.2. *u*- and *y*-plot significance levels for data set *USPSCL* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

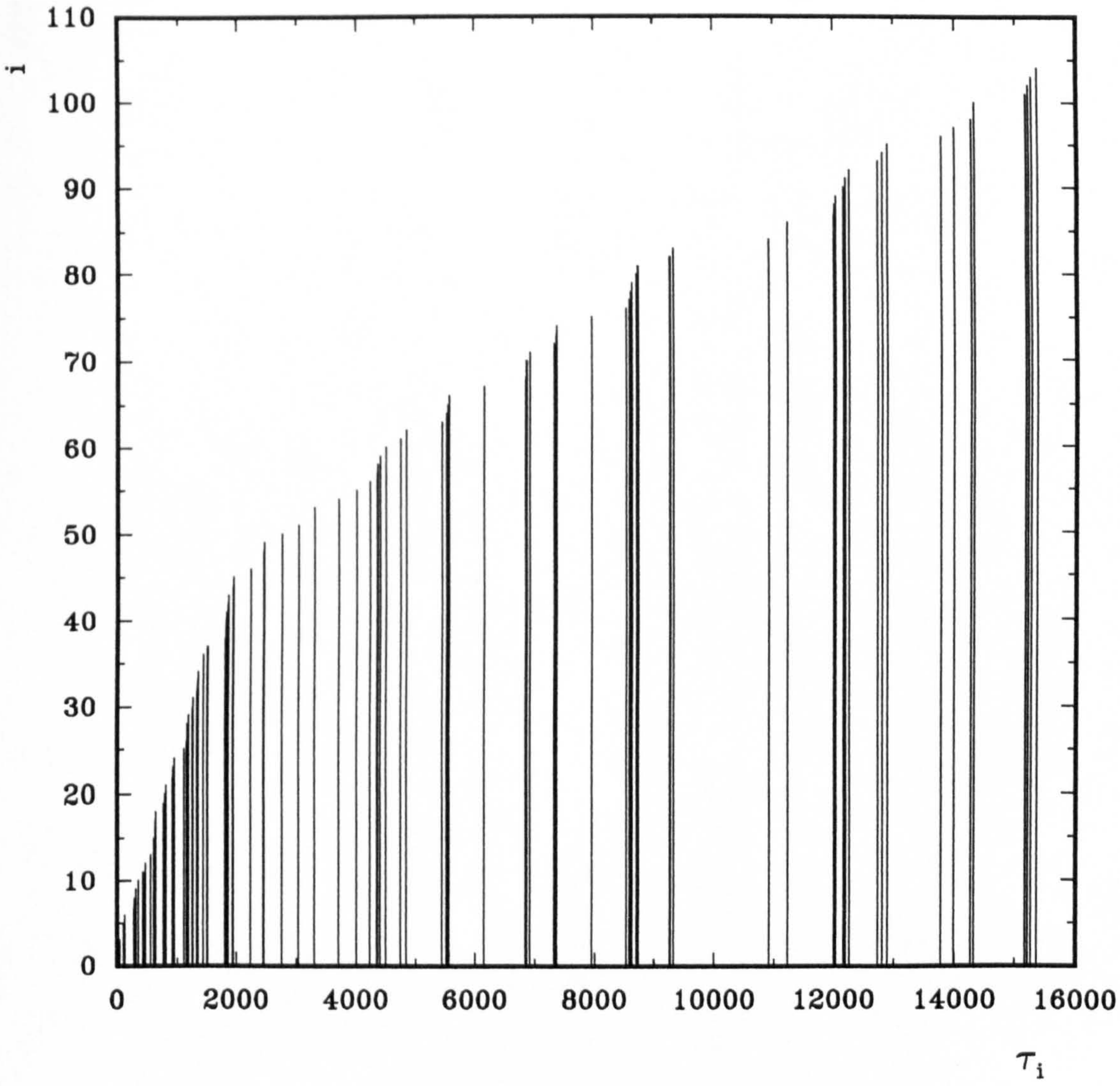


Figure B.6-3. Cumulative number of failures plotted against total elapsed time for data set *USPSCL*.

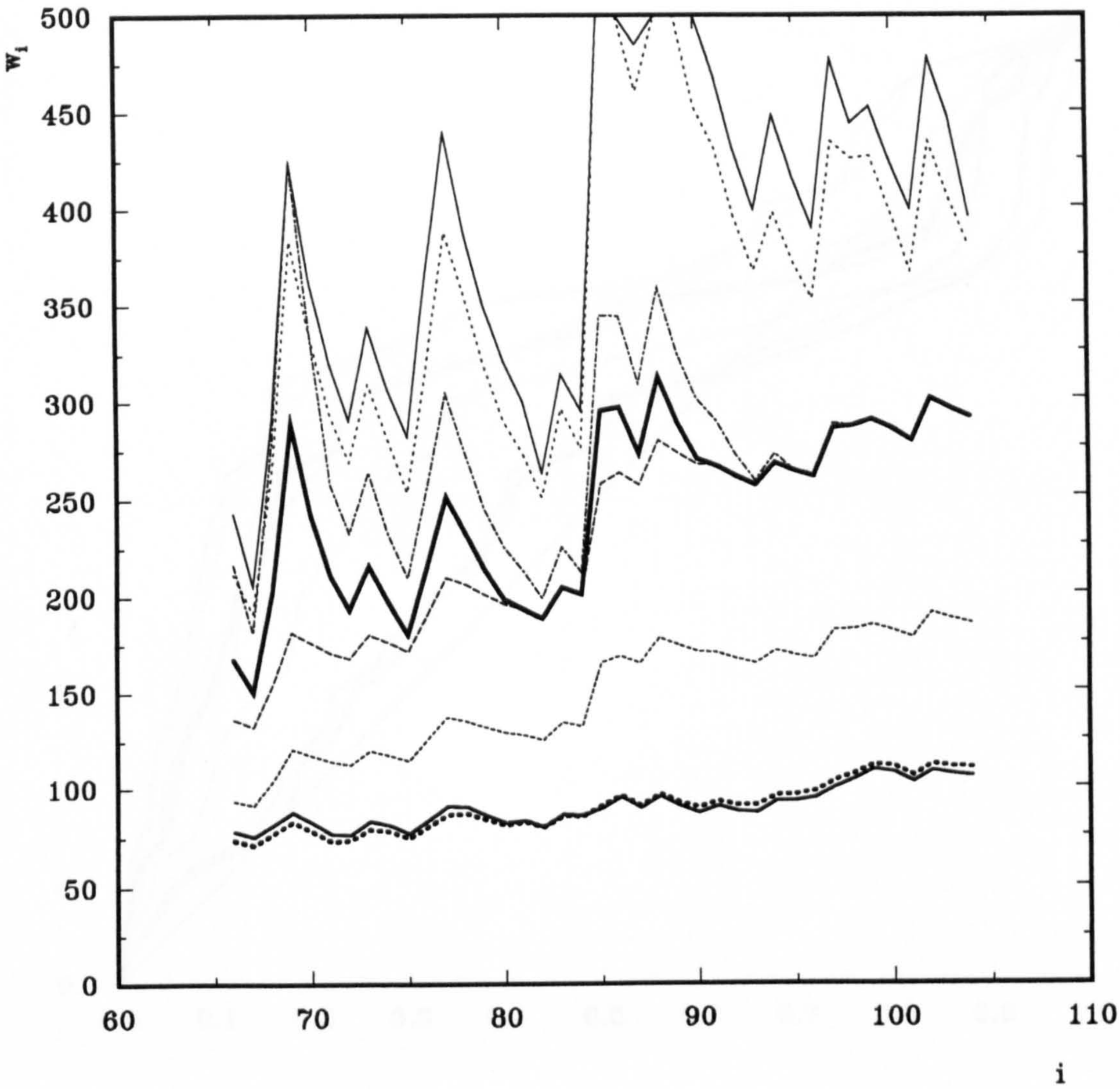
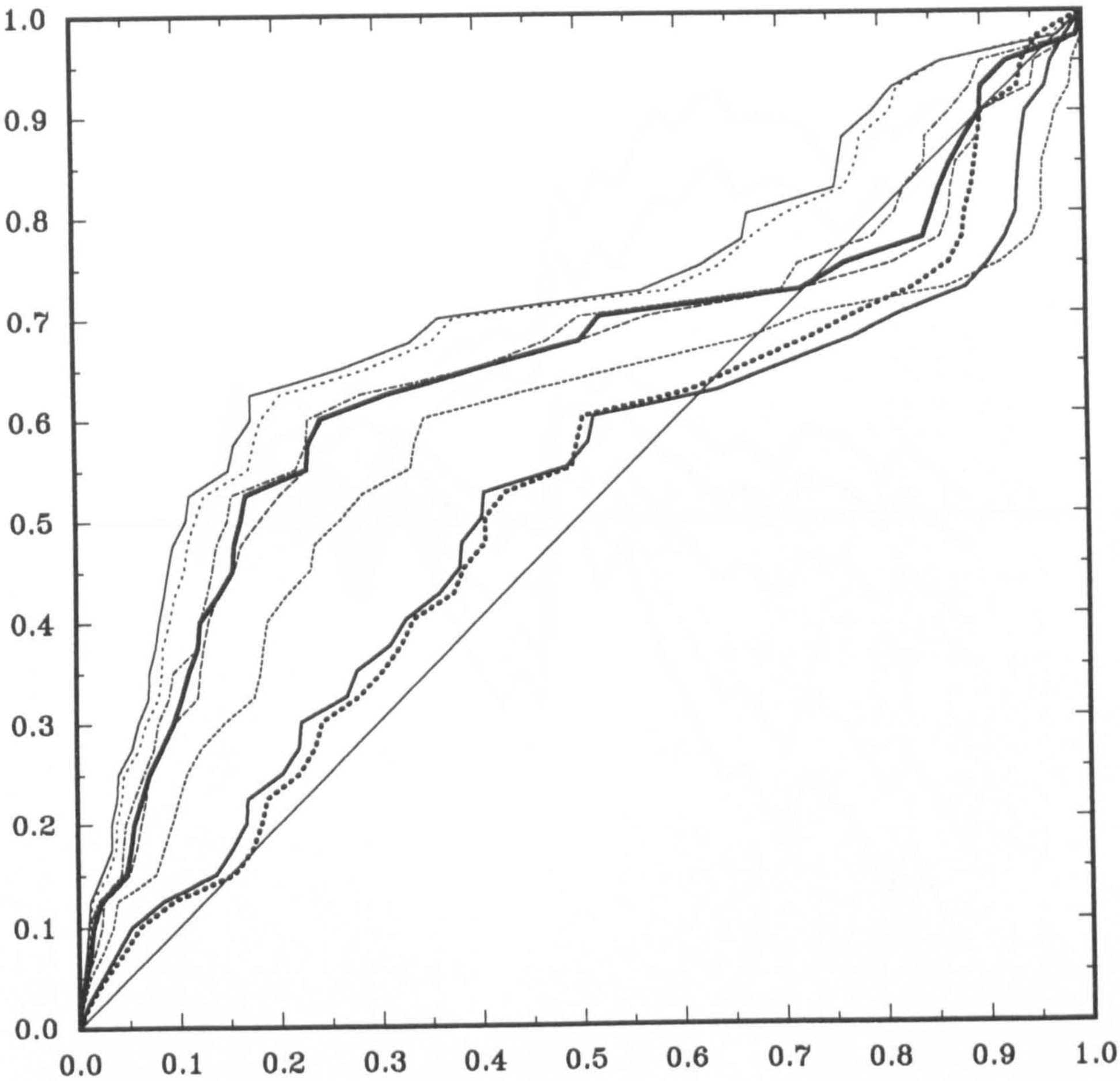


Figure B.6-4. Median predictions from the raw parametric predictors plotted against failure number for data set *USPSCL*.



JM
GO
MO
DU
LM
LNHPP
LV
KL

Figure B.6-5. *u*-plots for the raw parametric predictors for data set *USPSCL*.

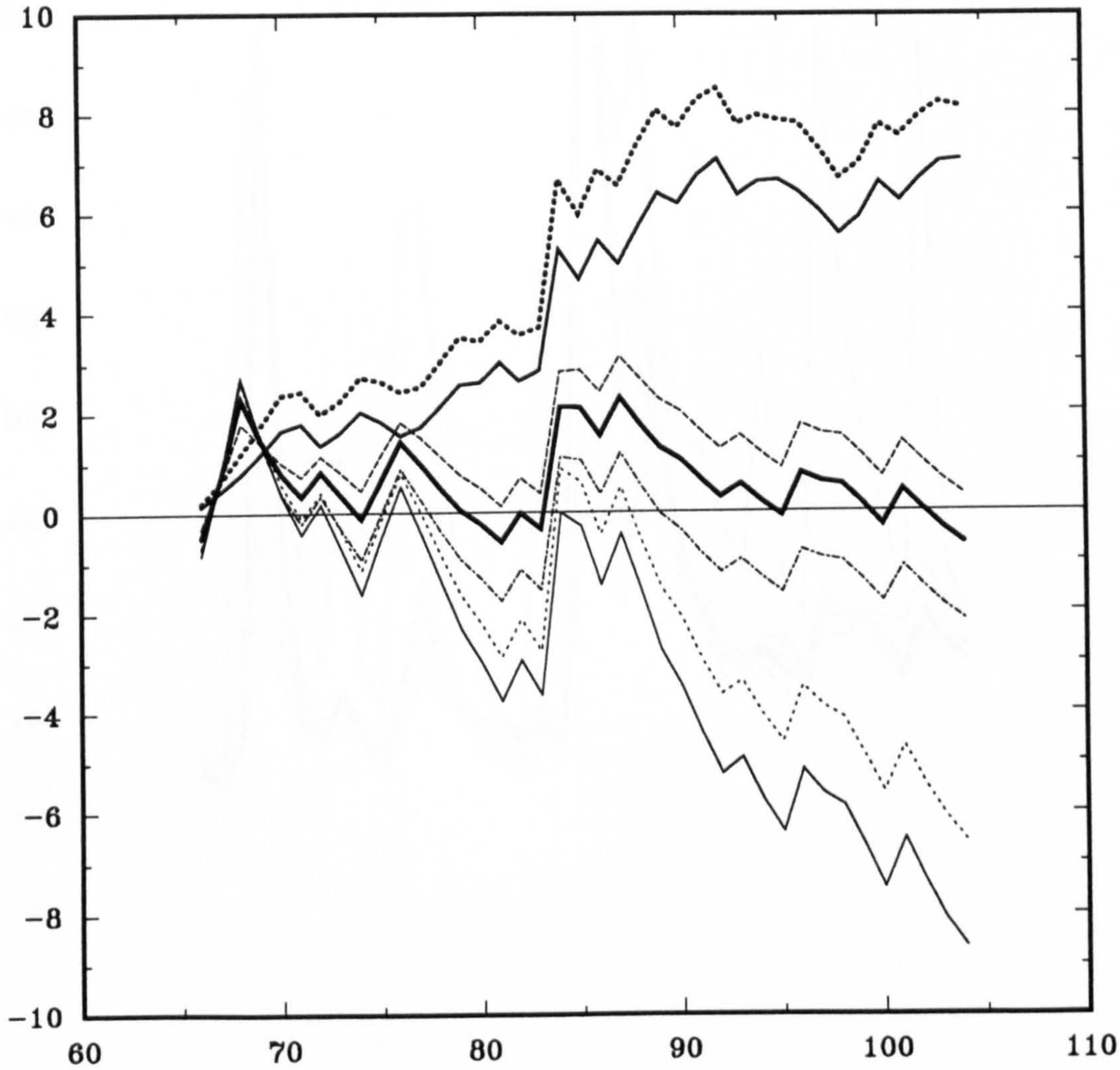


Figure B.6-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *USPSCL*.

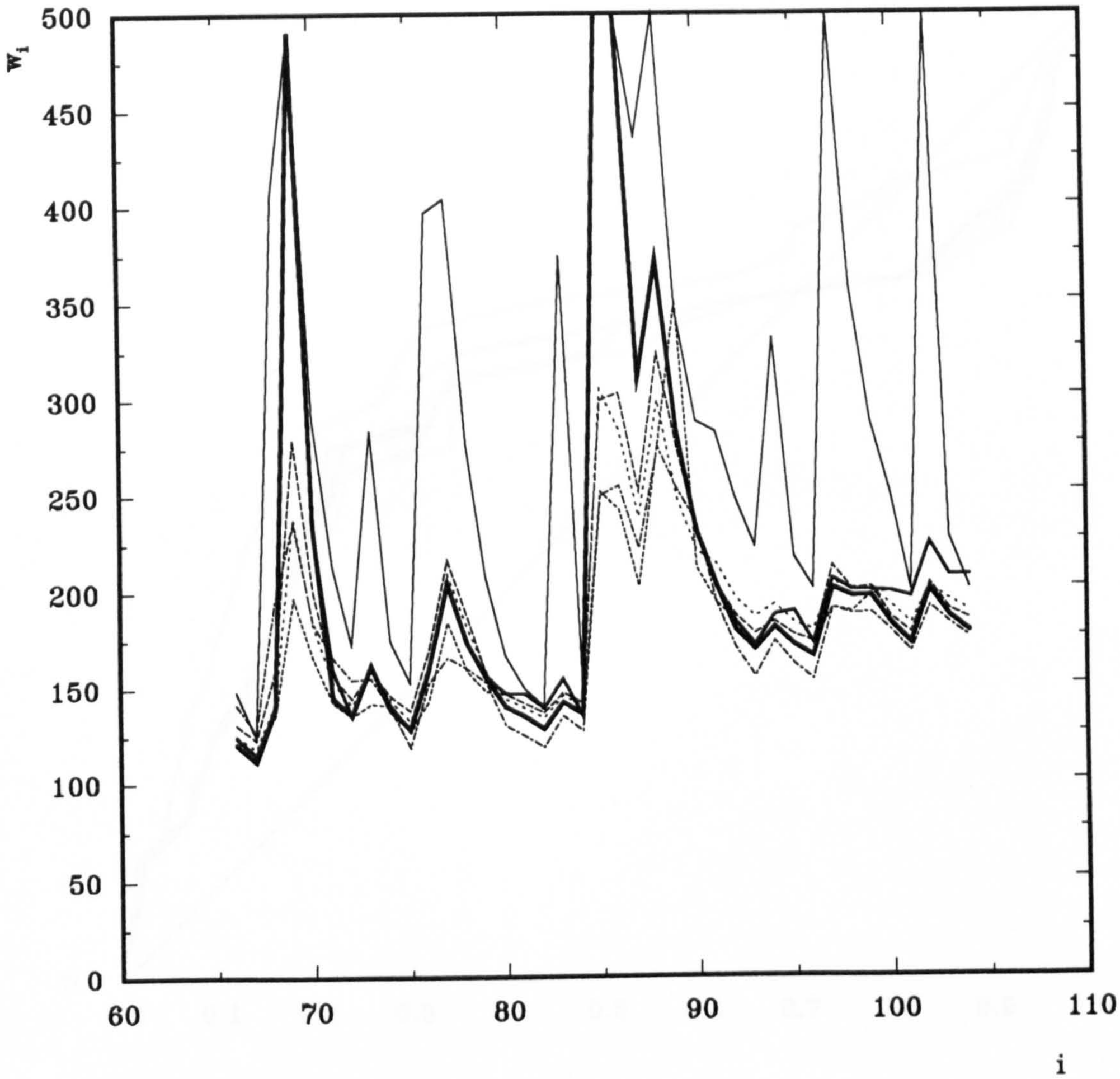
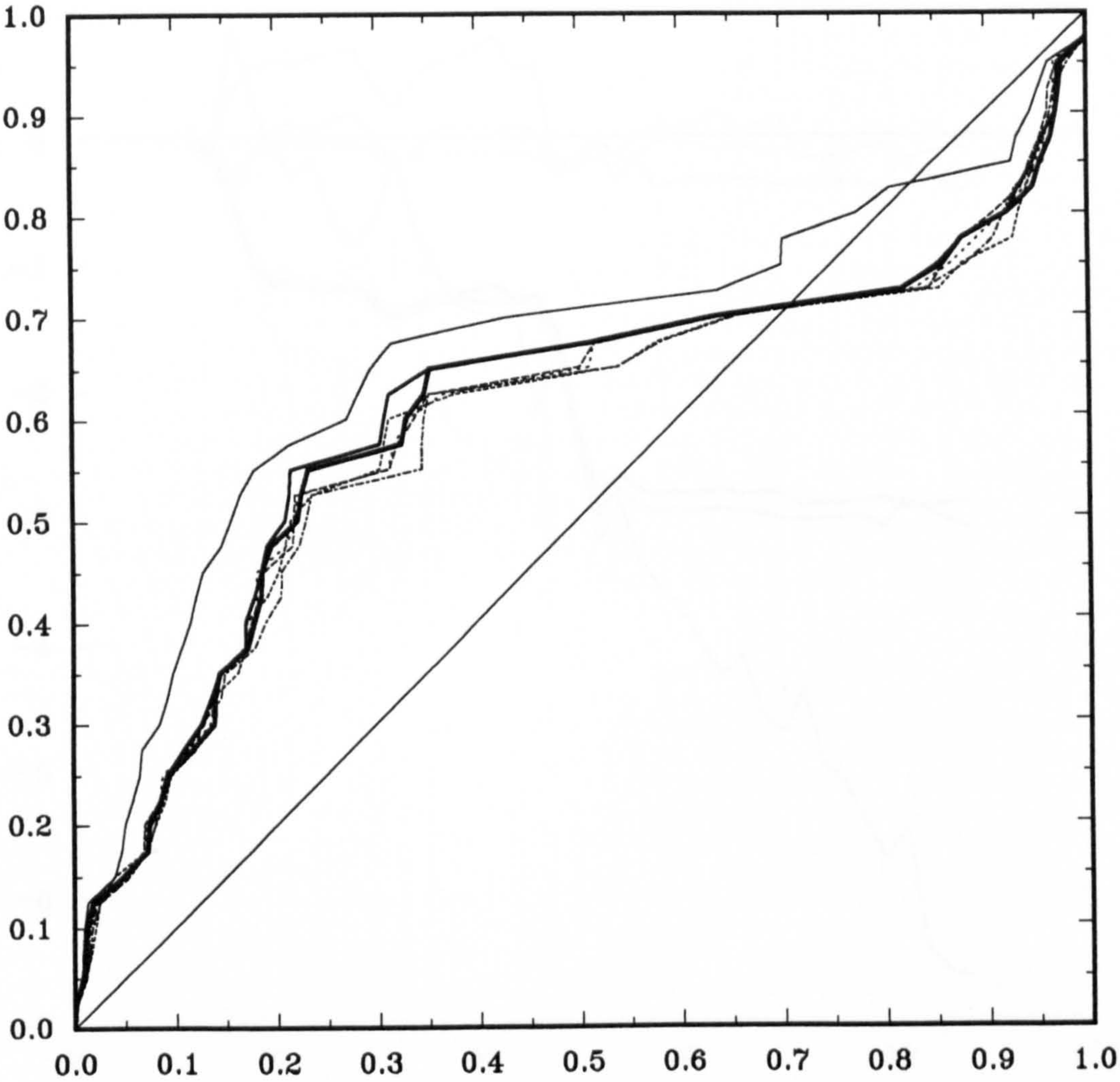


Figure B.6-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *USPSCL*.



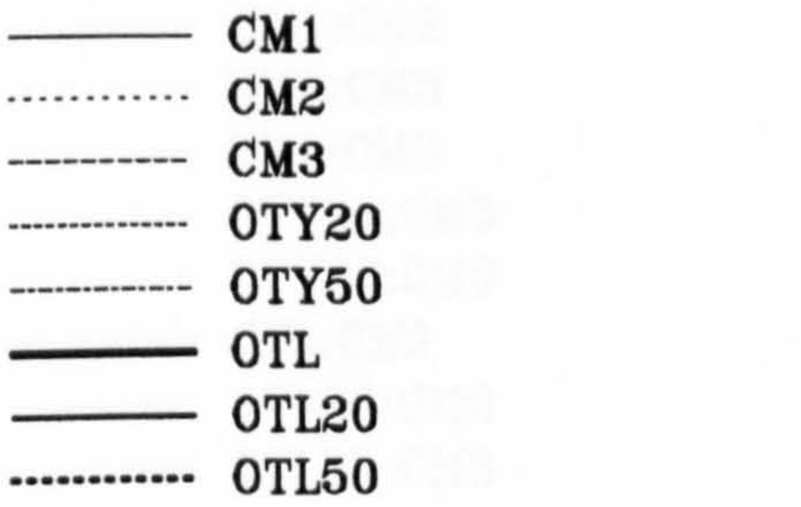


Figure B.6-8. *u*-plots for the raw non-parametric predictors for data set *USPSCL*.

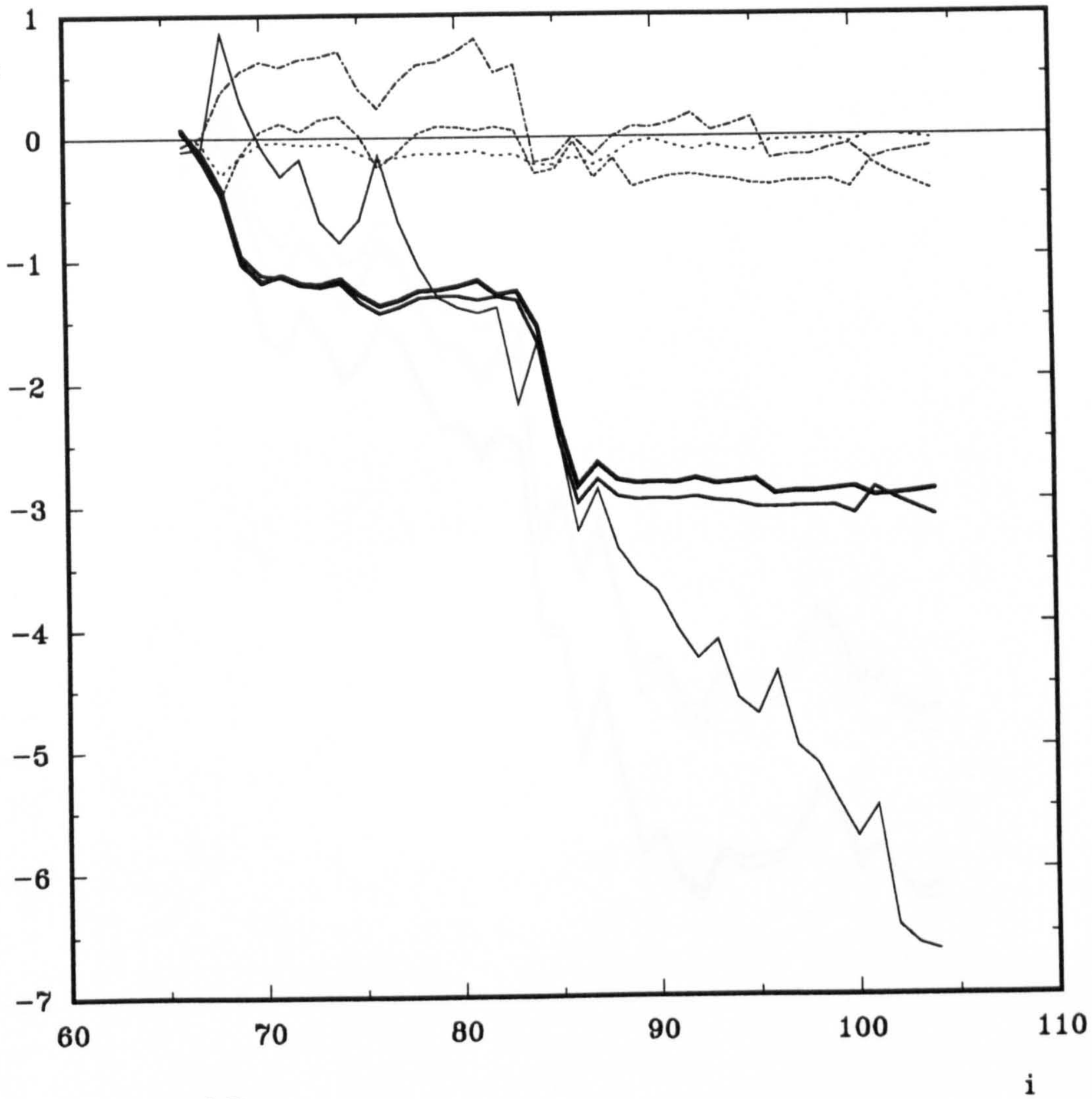


Figure B.6-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *USPSCL*.

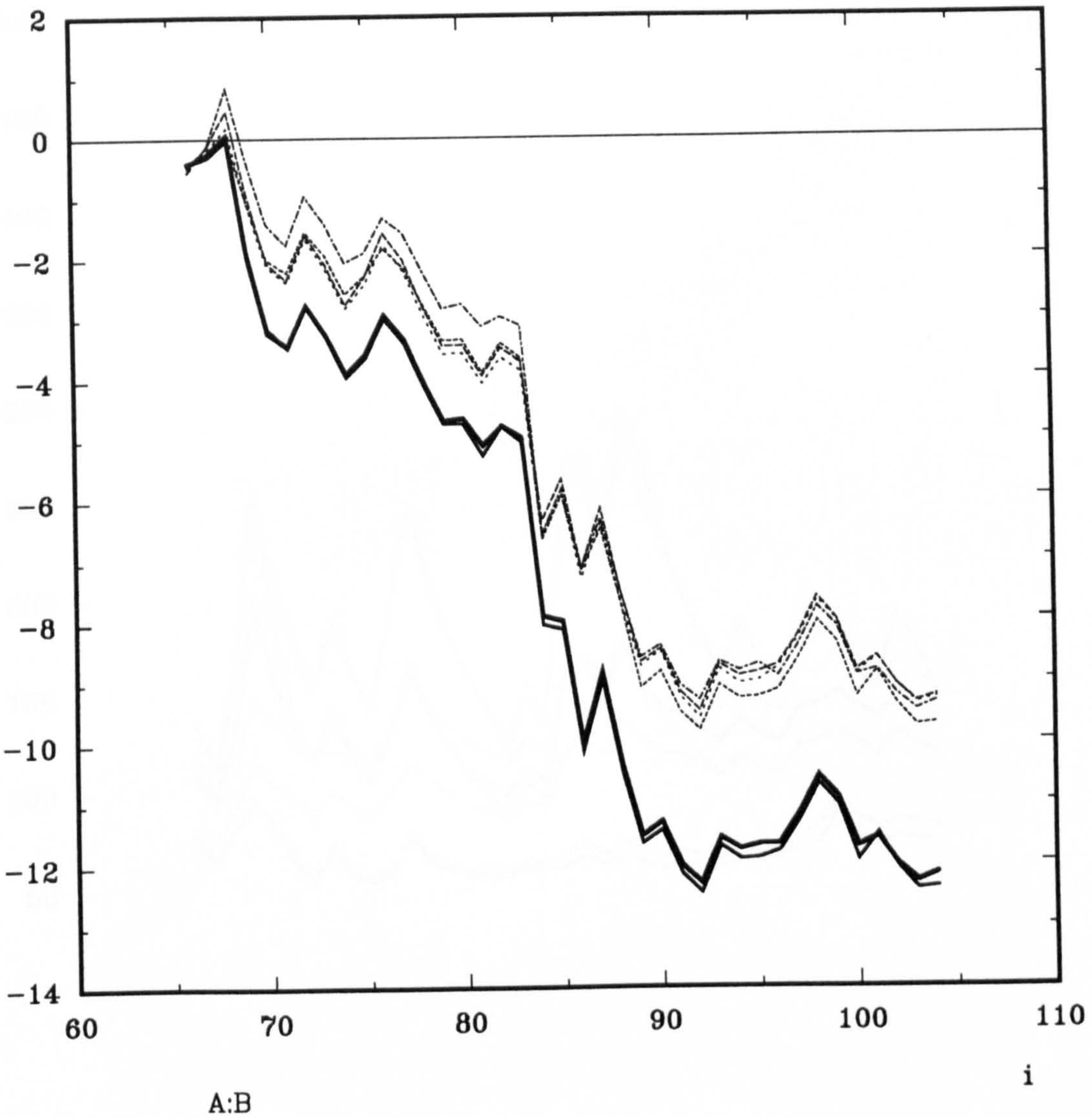


Figure B.6-10. *log(PLR)*-plots for the raw non-parametric predictors versus *KL* for data set *USPSCL*.

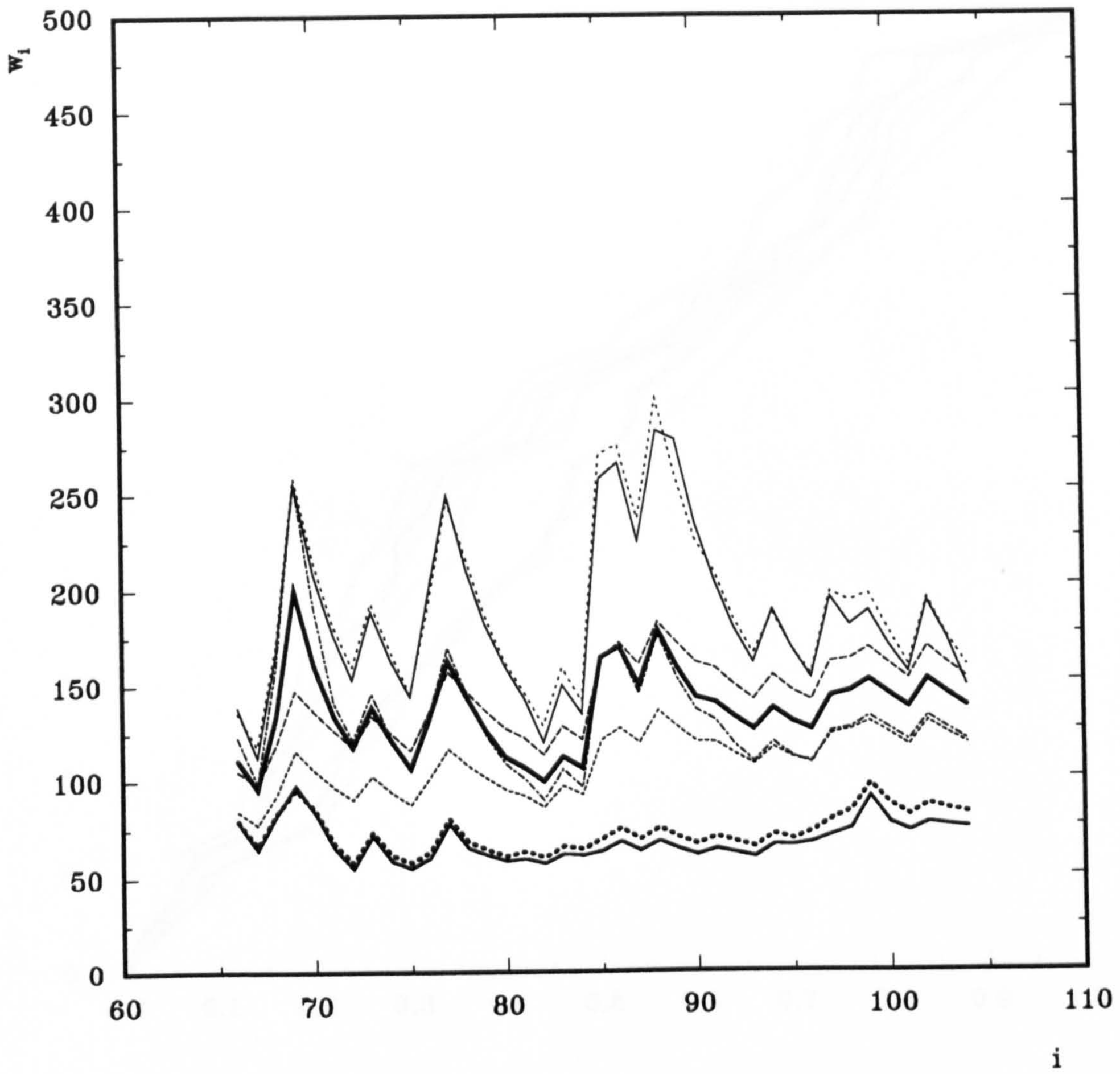
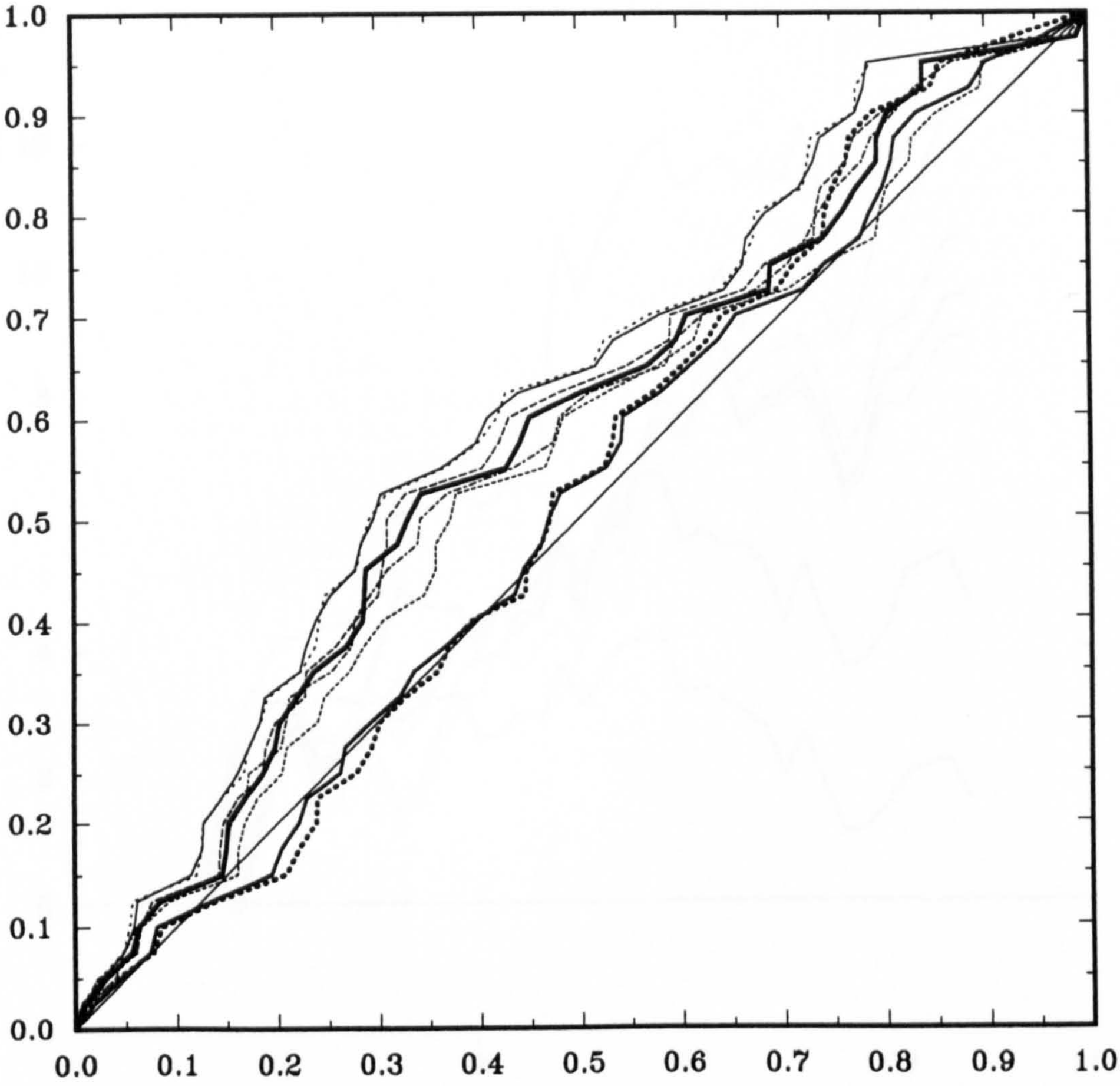


Figure B.6-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *USPSCL*.



JMS
GOS
MOS
DUS
LMS
LNHPPS
LVS
KLS

Figure B.6-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *USPSCL*.

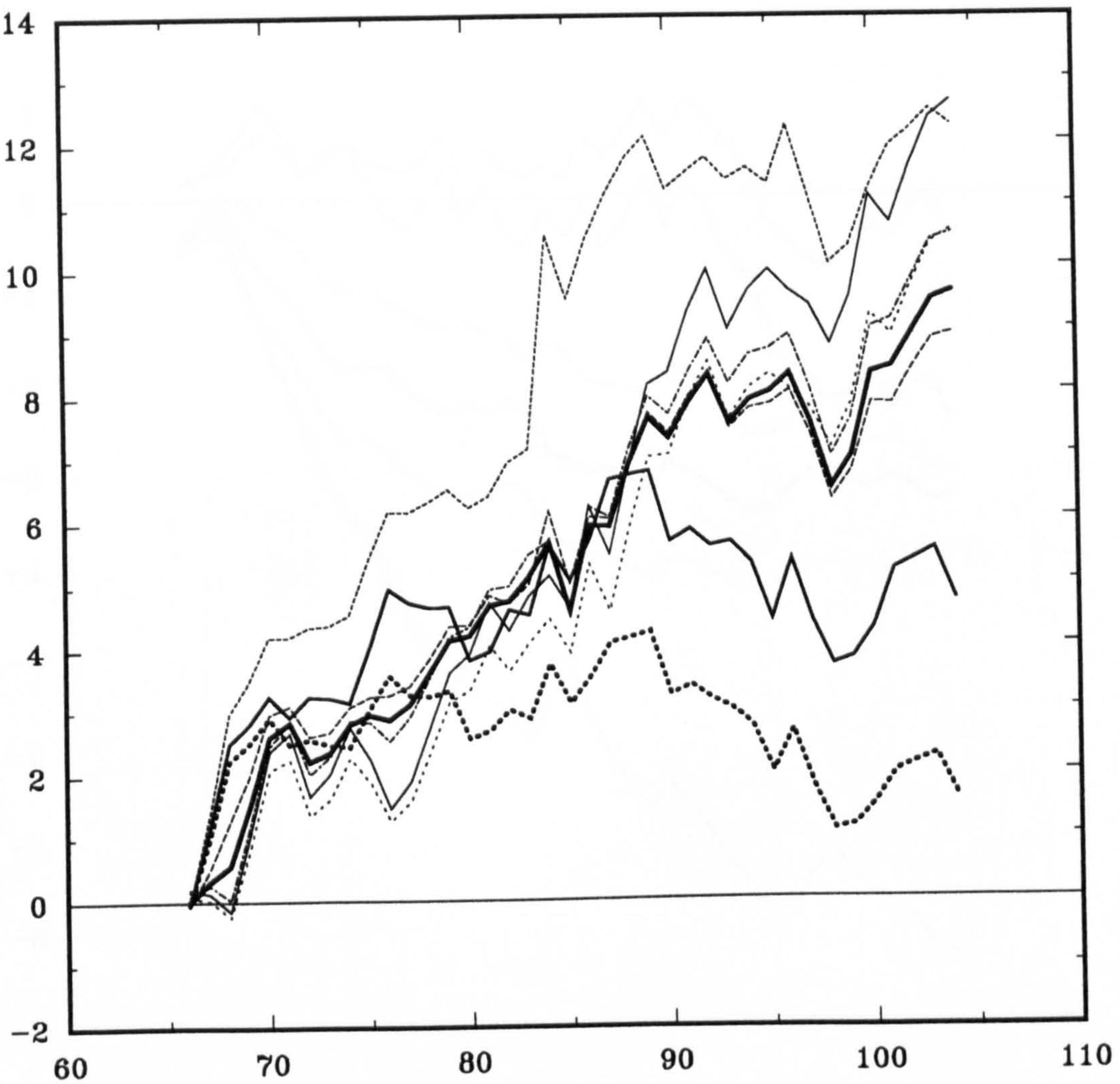


Figure B.6-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *USPSCL*.

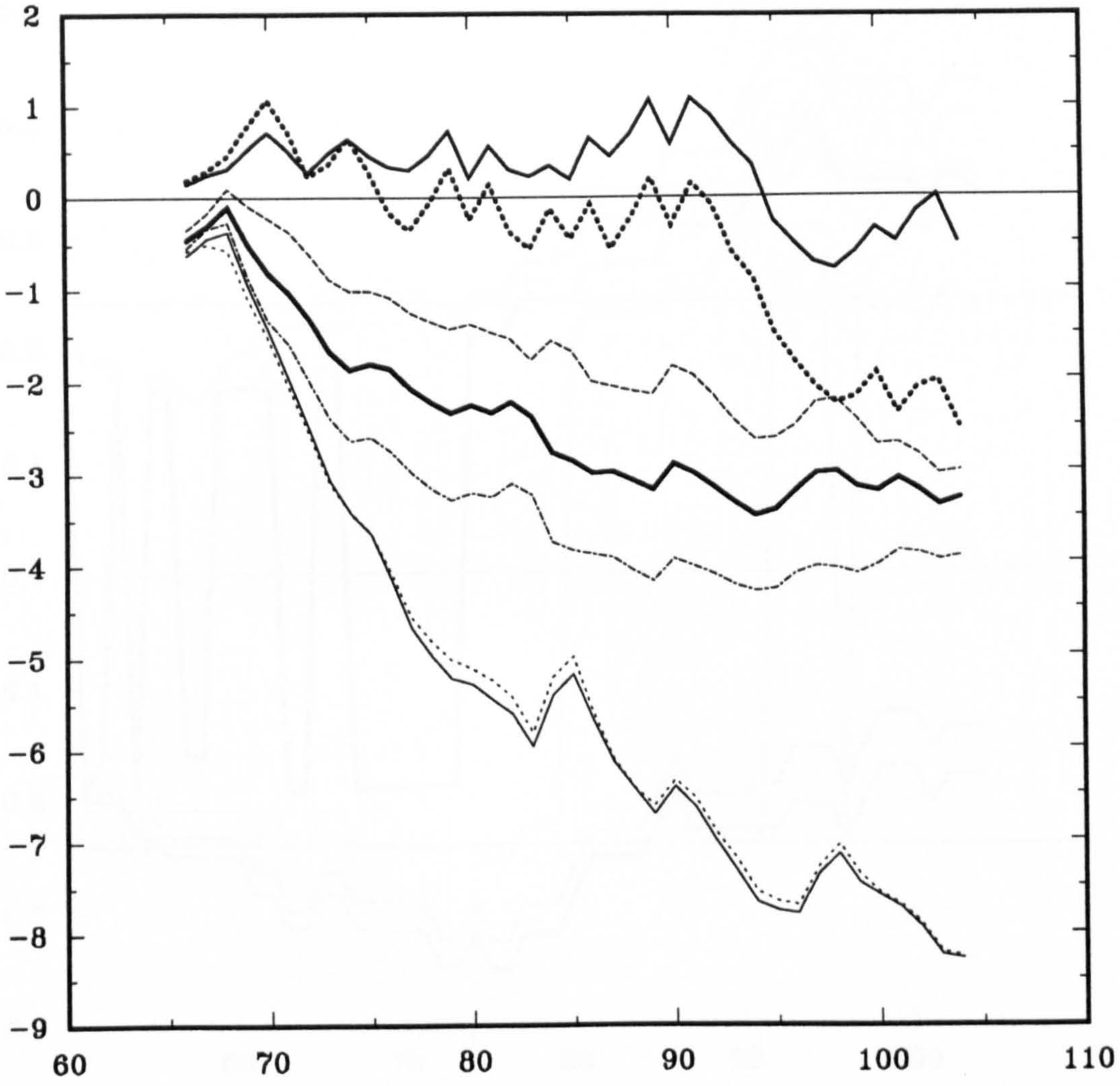


Figure B.6-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *USPSCL*.

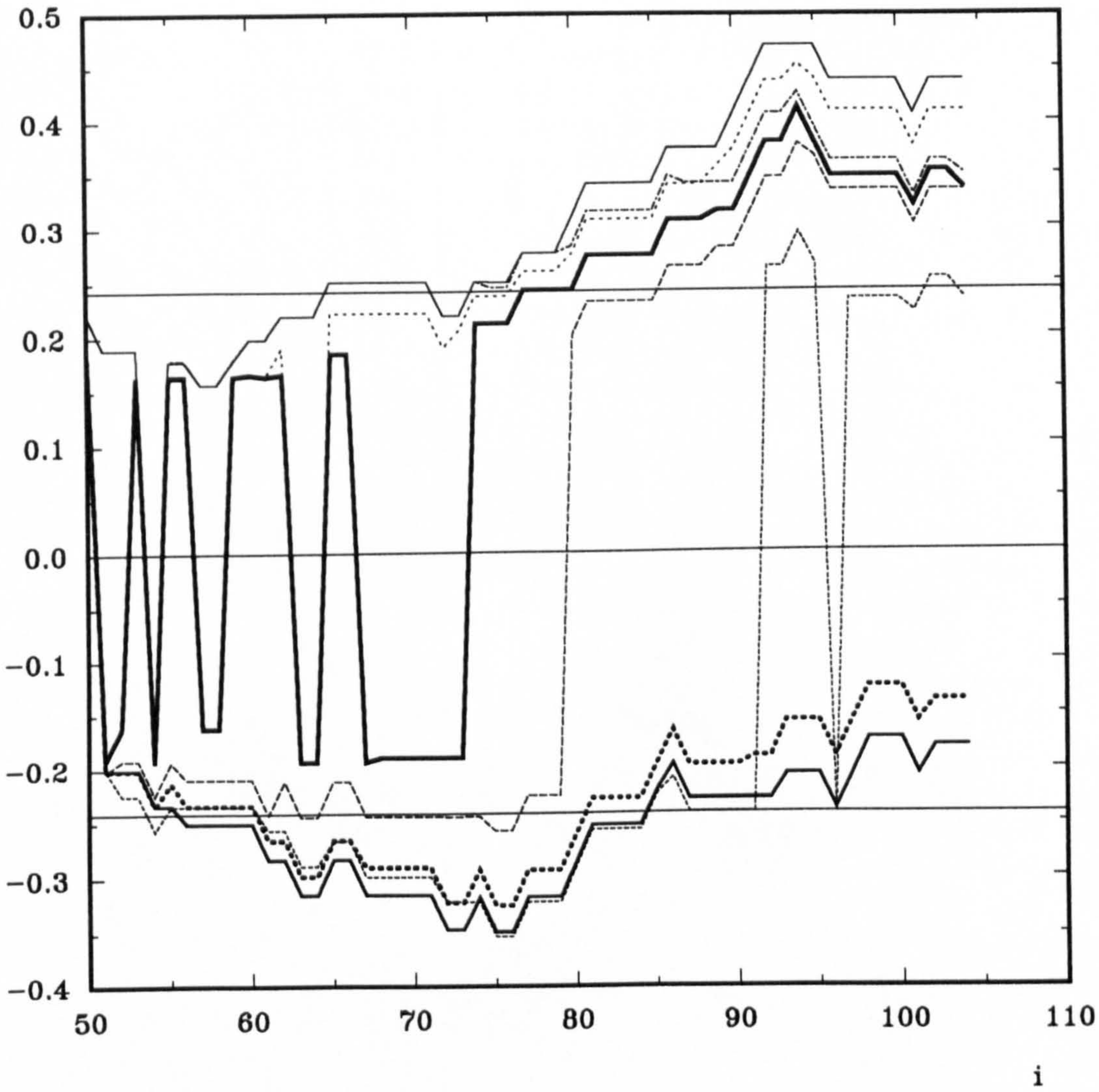


Figure B.6-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *USPSCL*.

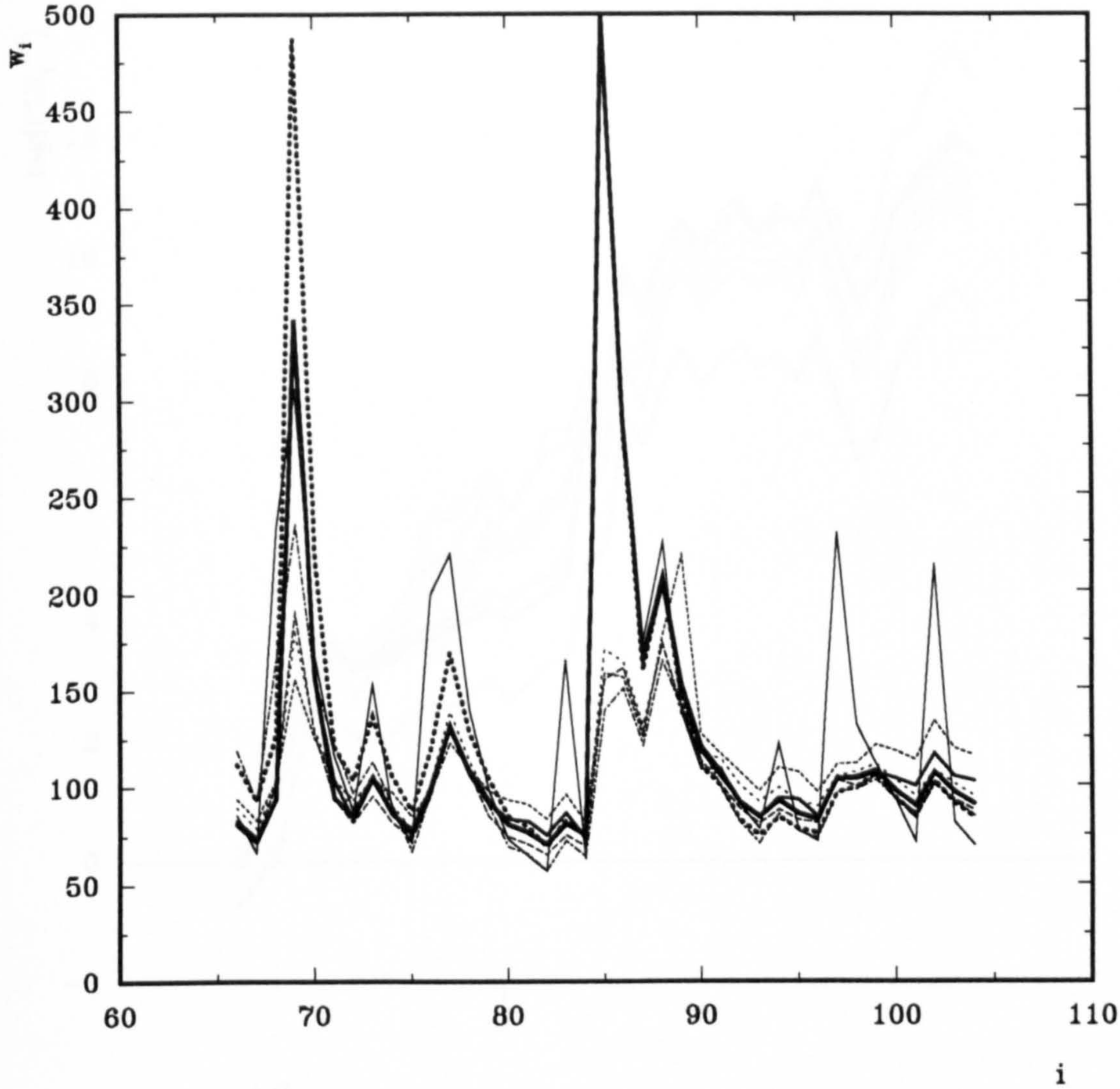


Figure B.6-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *USPSCL*.

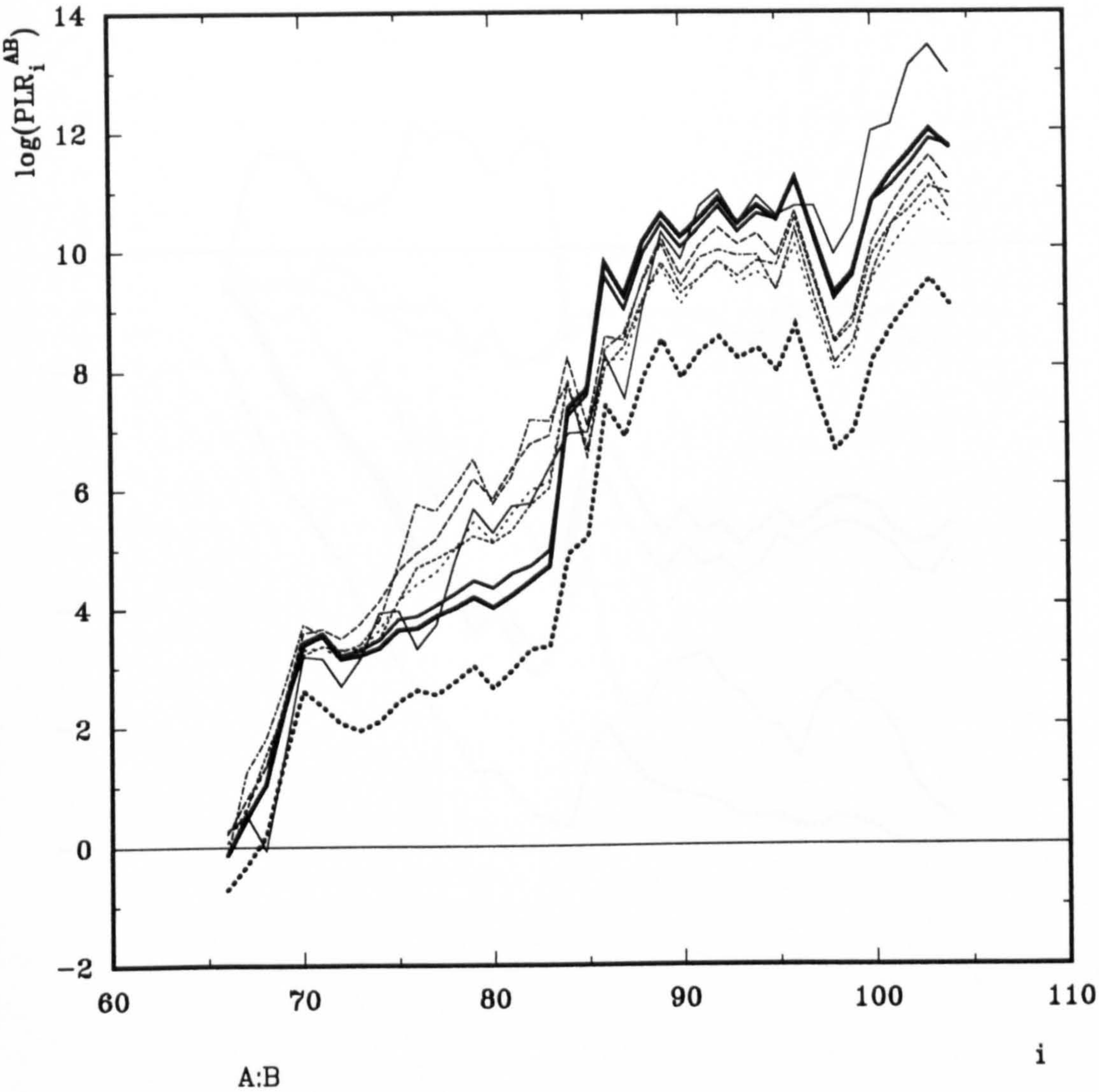


Figure B.6-17. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *USPSCL*.

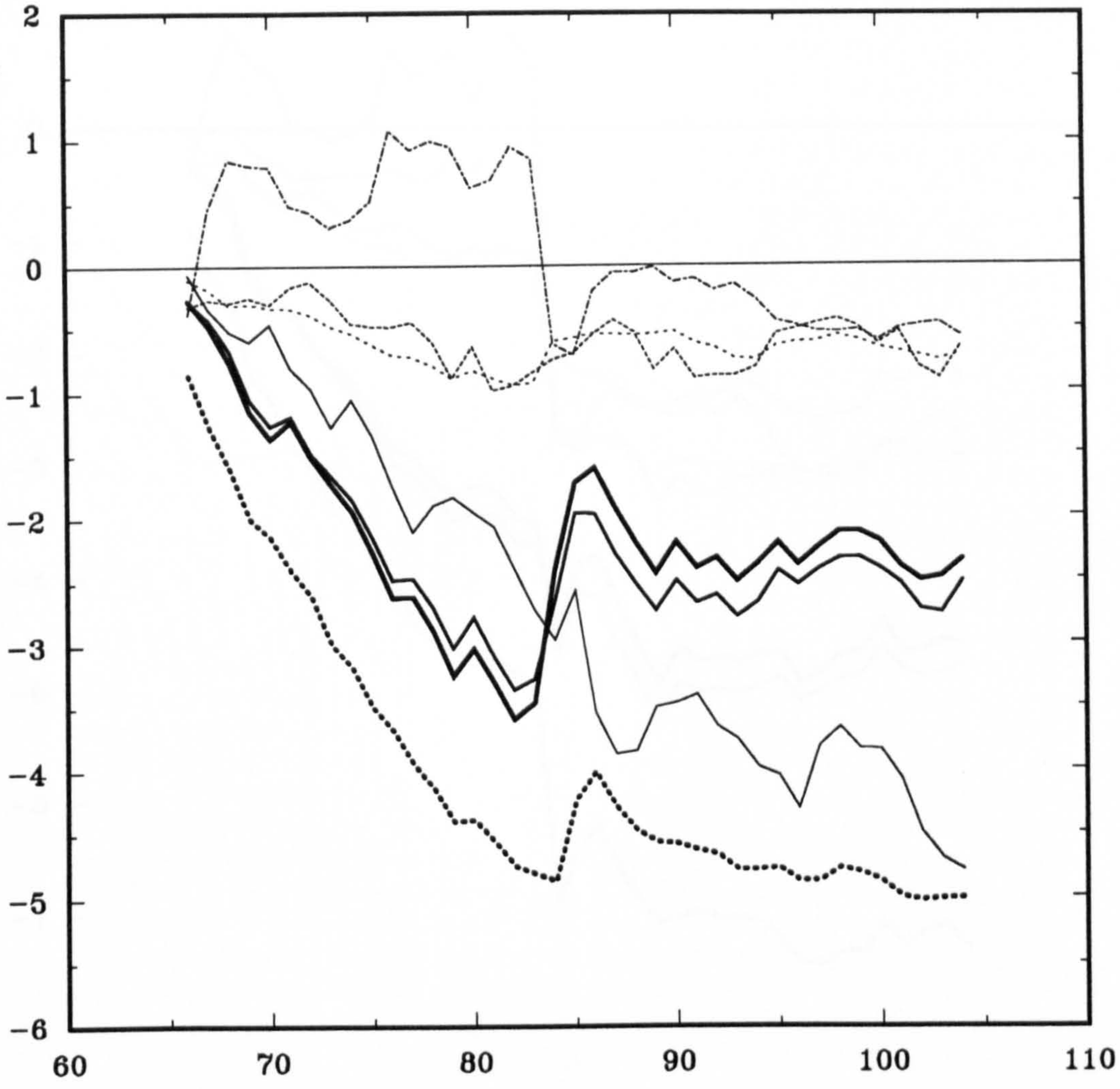


Figure B.6-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *USPSCL*.

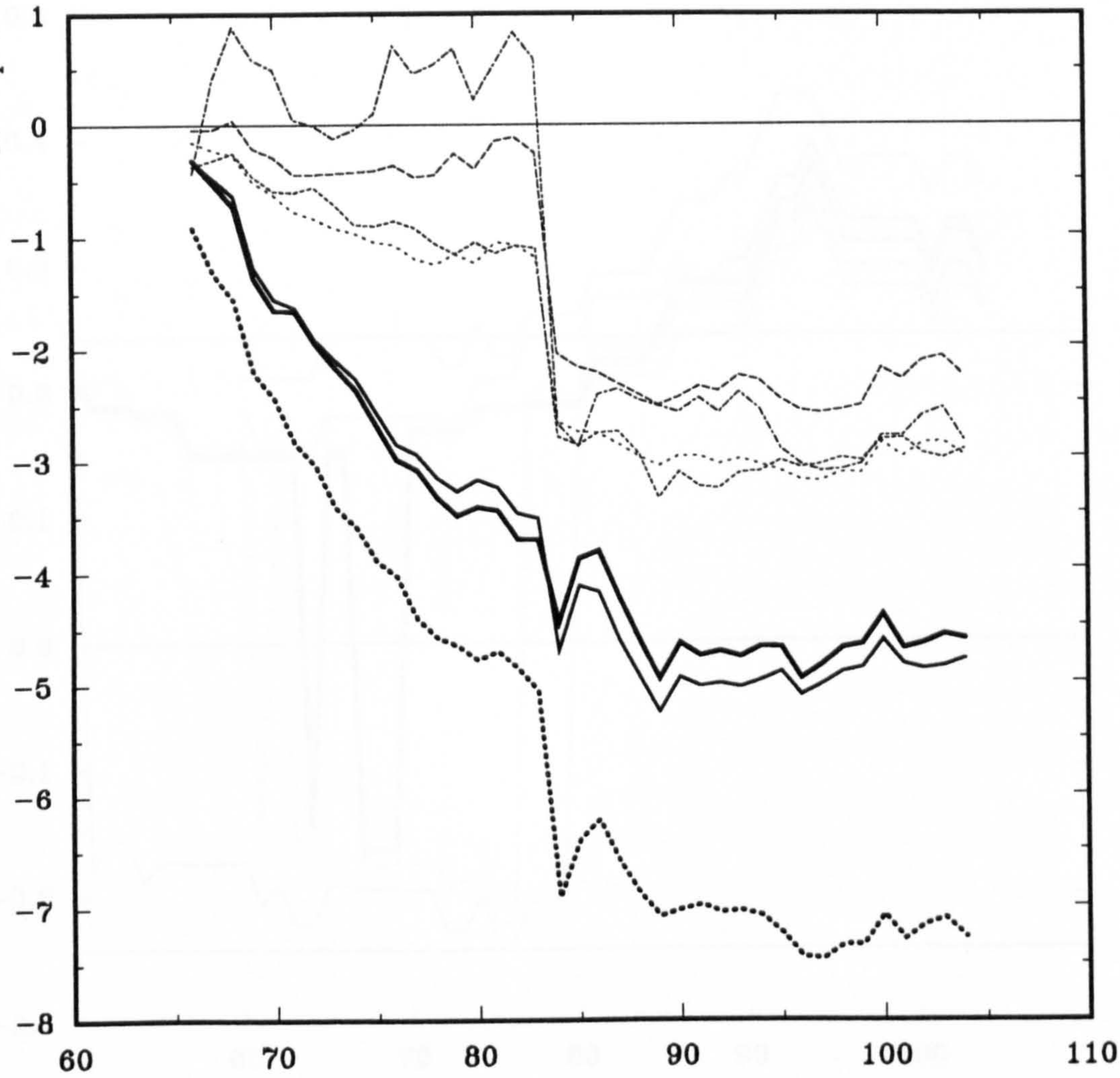


Figure B.6-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *DUS* for data set *USPSCL*.

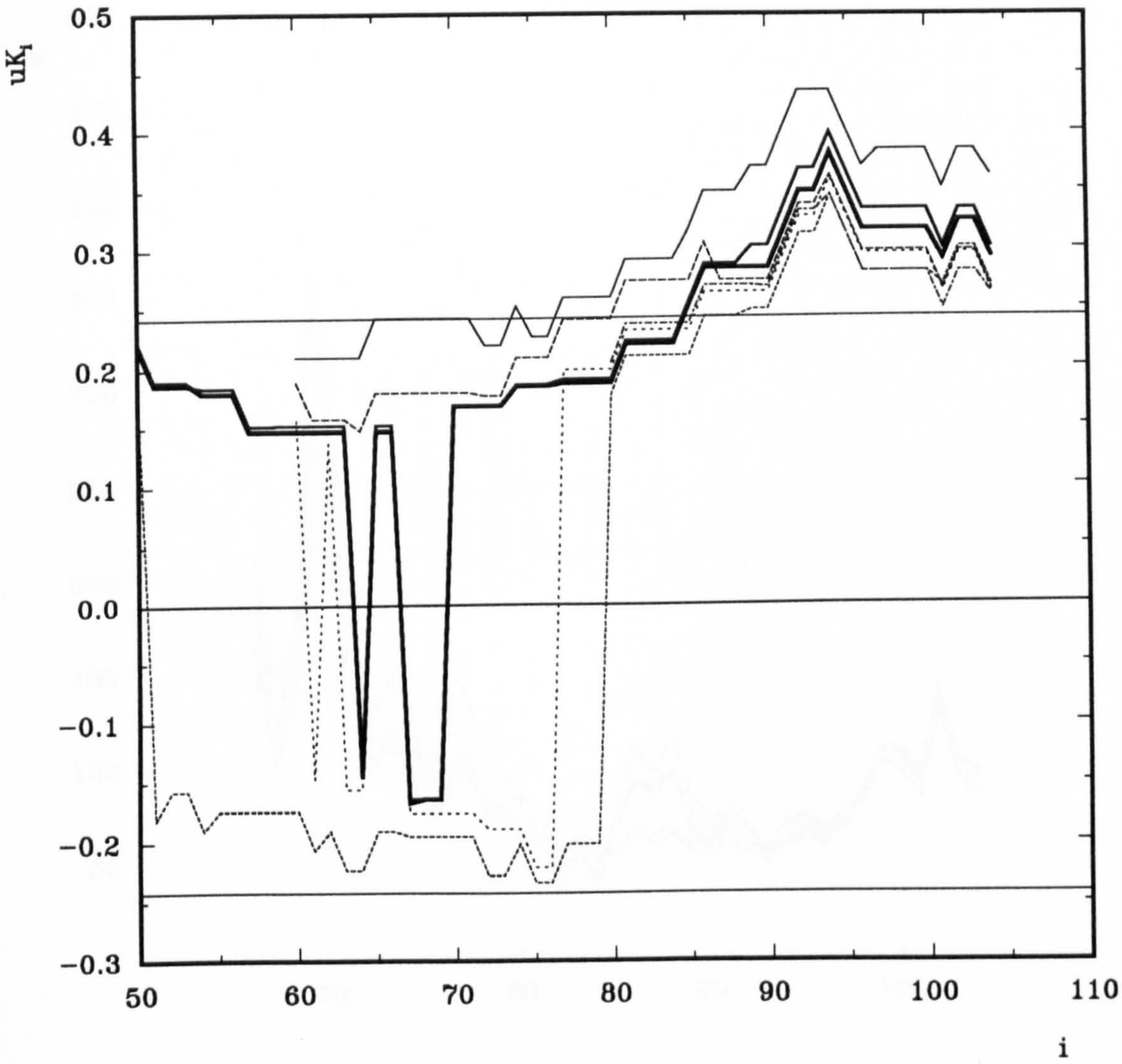


Figure B.6-20. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *USPSCL*.

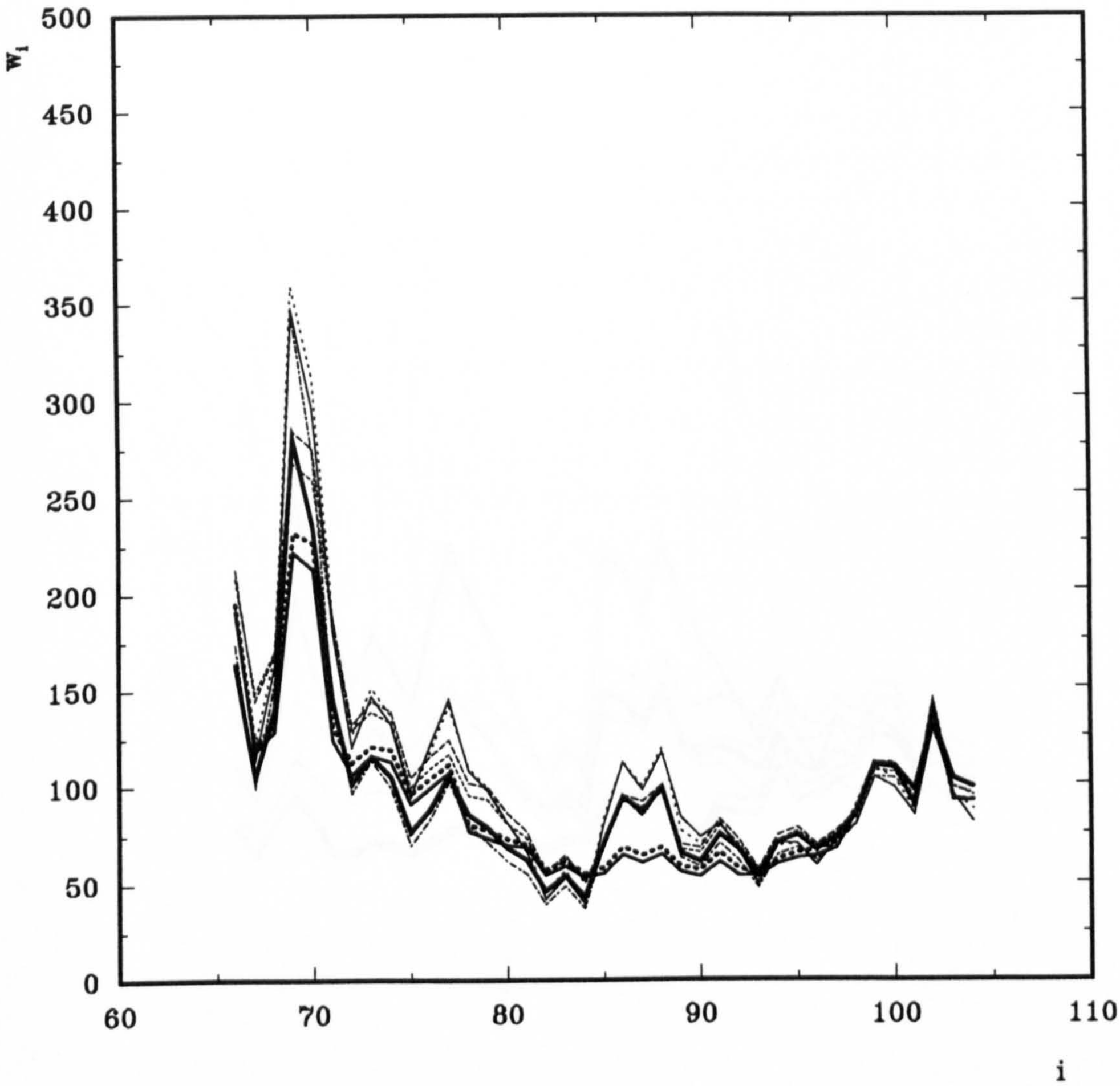


Figure B.6-21. Median predictions from the recalibrated (window = *20*) parametric predictors plotted against failure number for data set *USPSCL*.

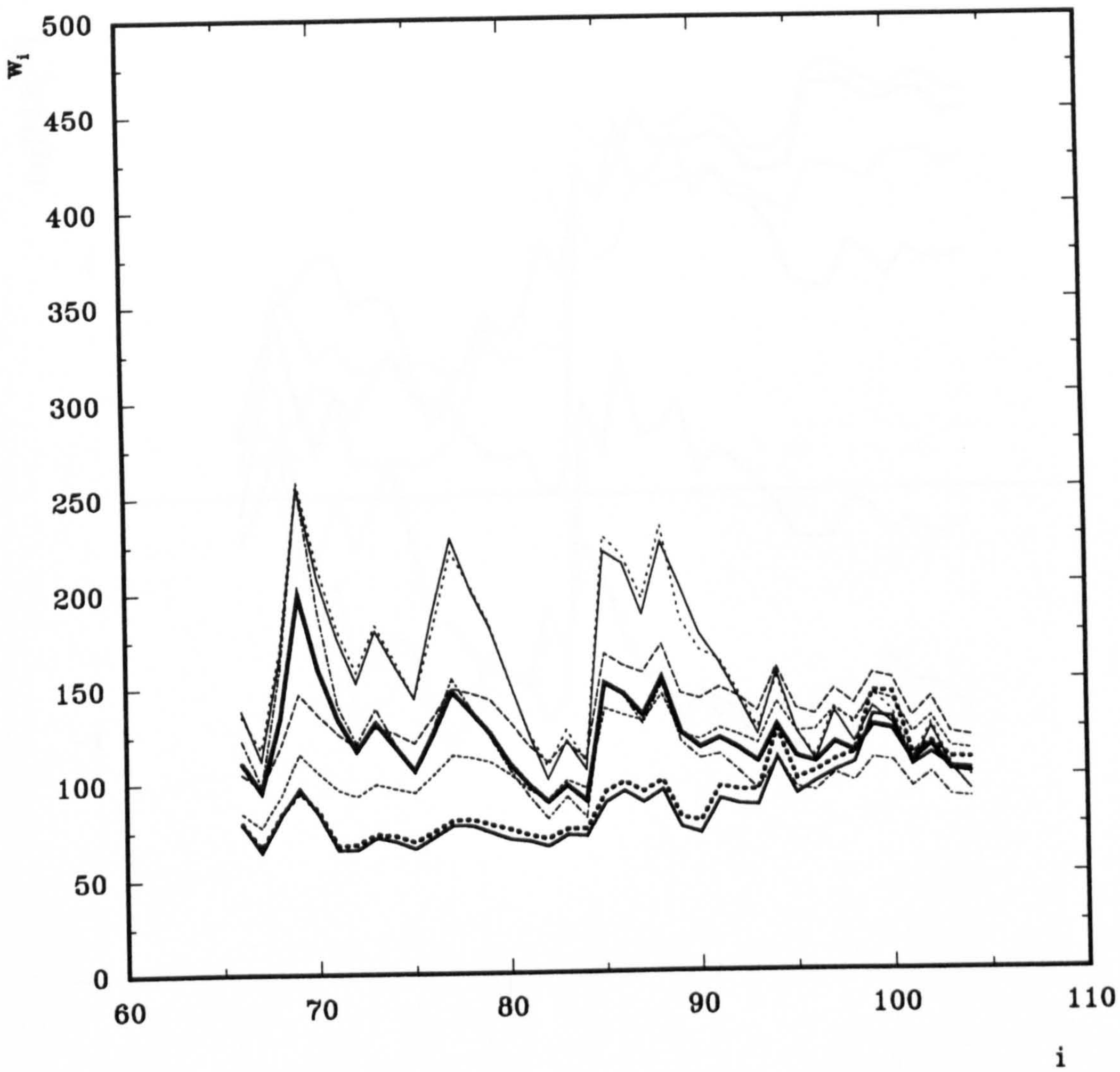


Figure B.6-22. Median predictions from the recalibrated (window = *50*) parametric predictors plotted against failure number for data set *USPSCL*.

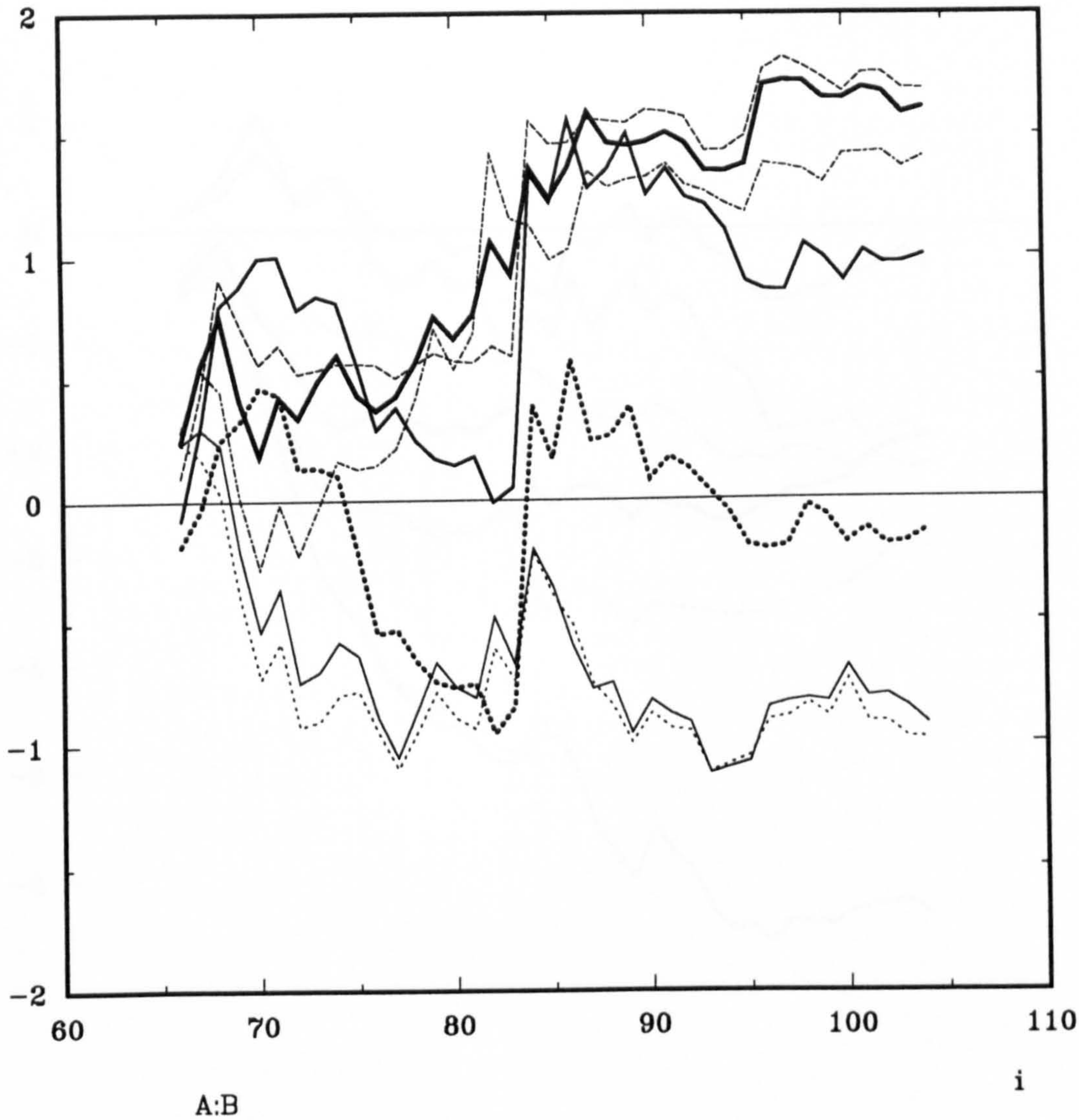


Figure B.6-23. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus *DUS20* for data set *USPSCL*.

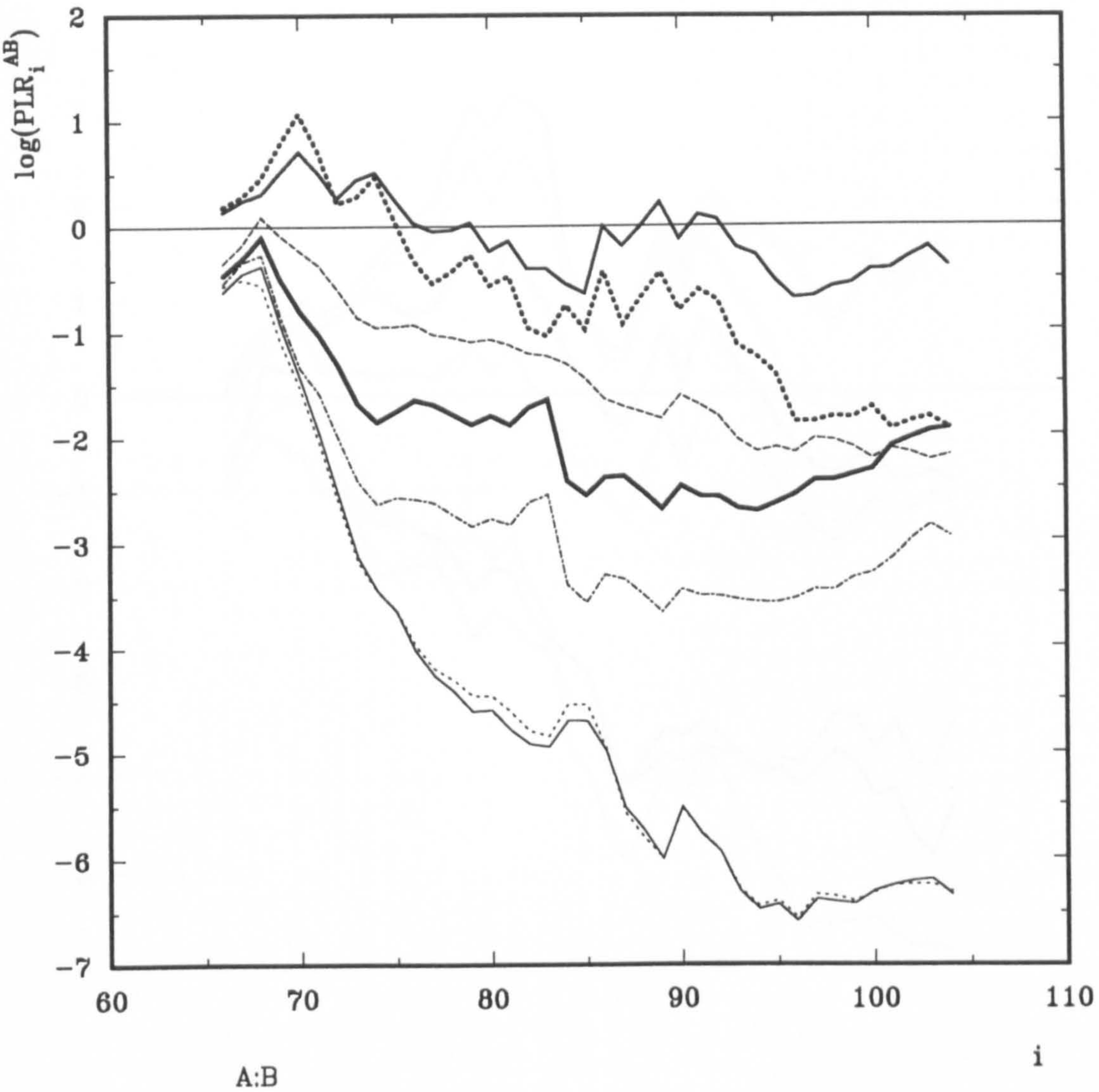


Figure B.6-24. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus *DUS50* for data set *USPSCL*.

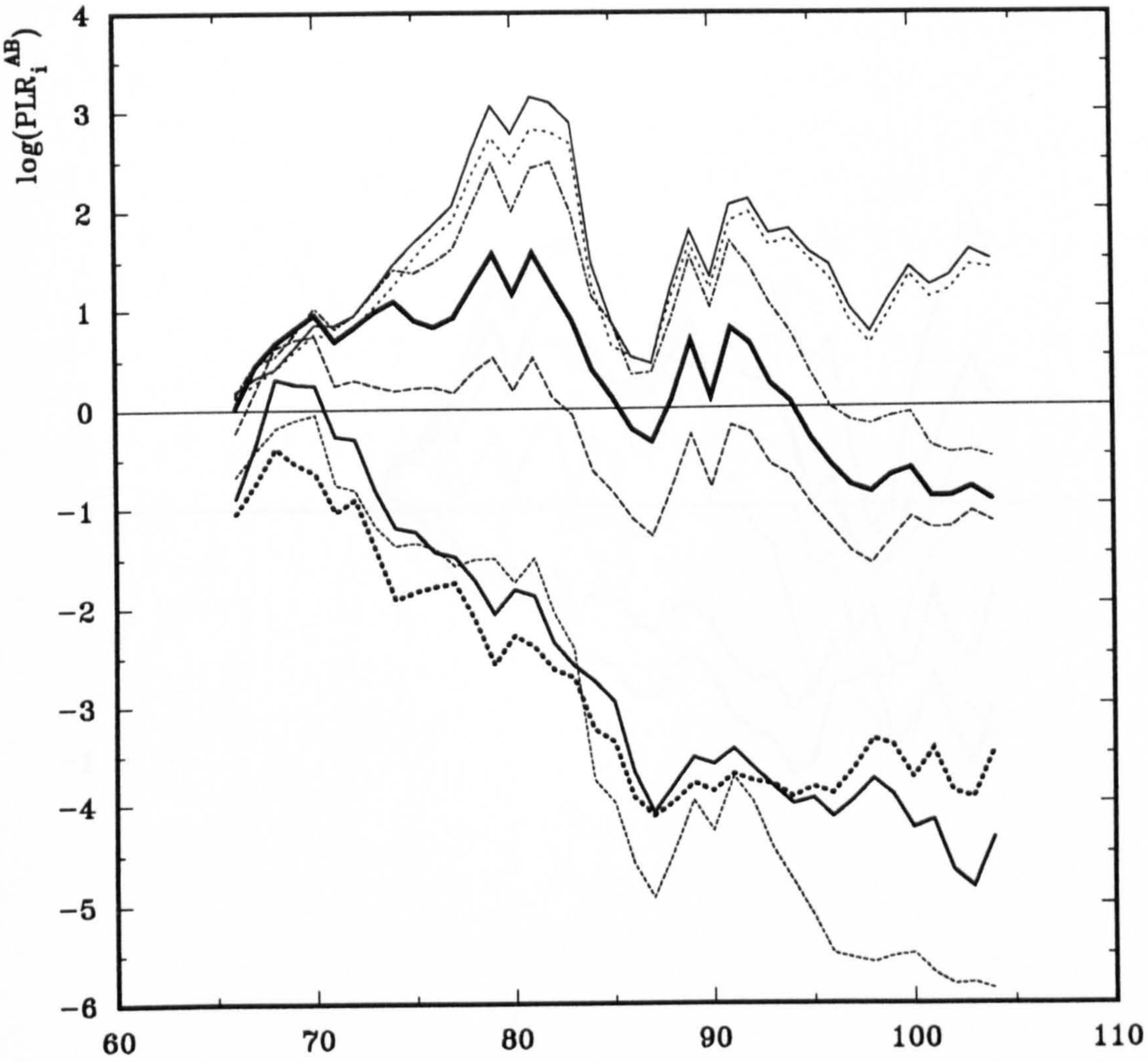


Figure B.6-25. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USPSCL*.

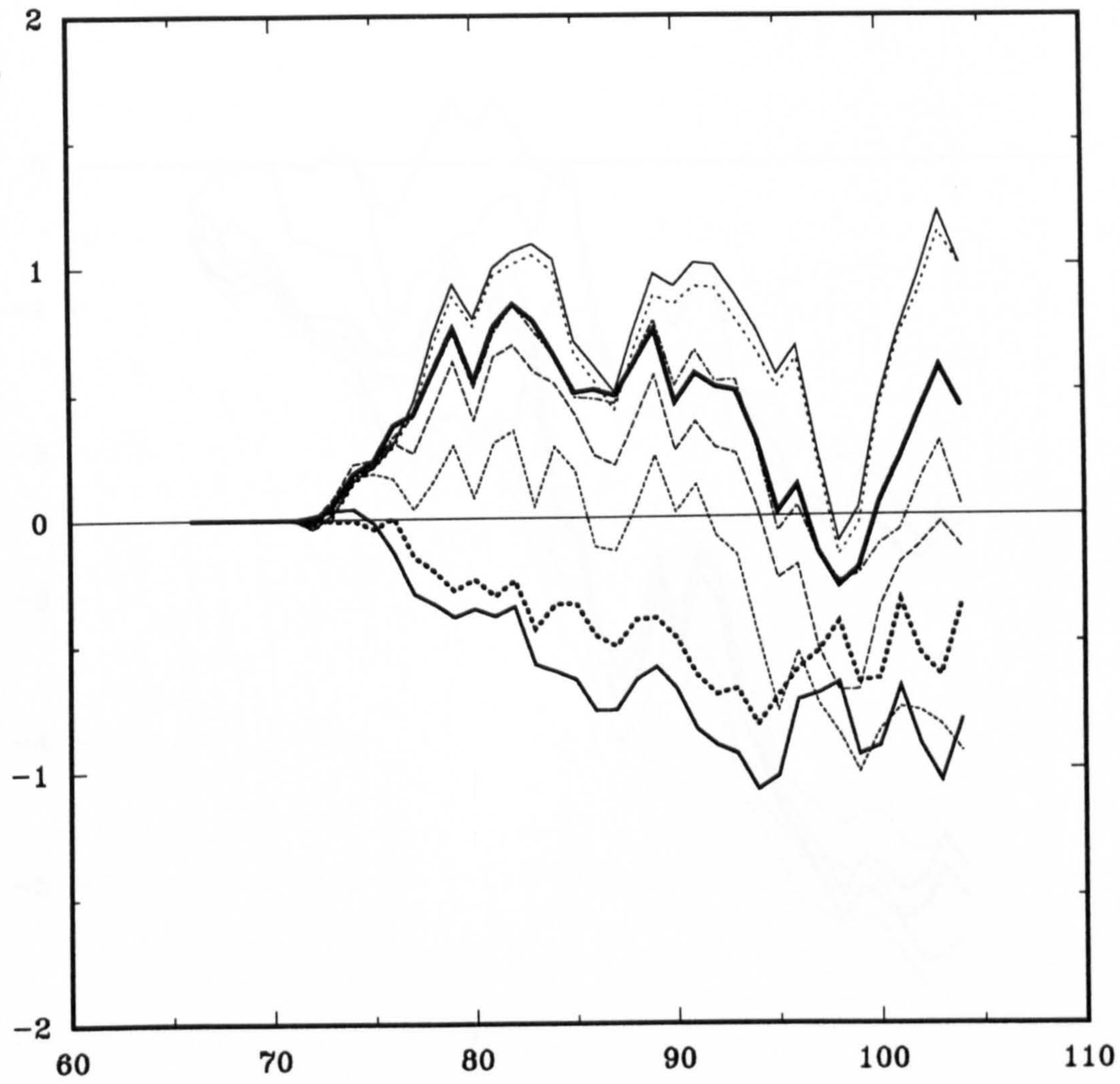


Figure B.6-26. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *USPSCL*.

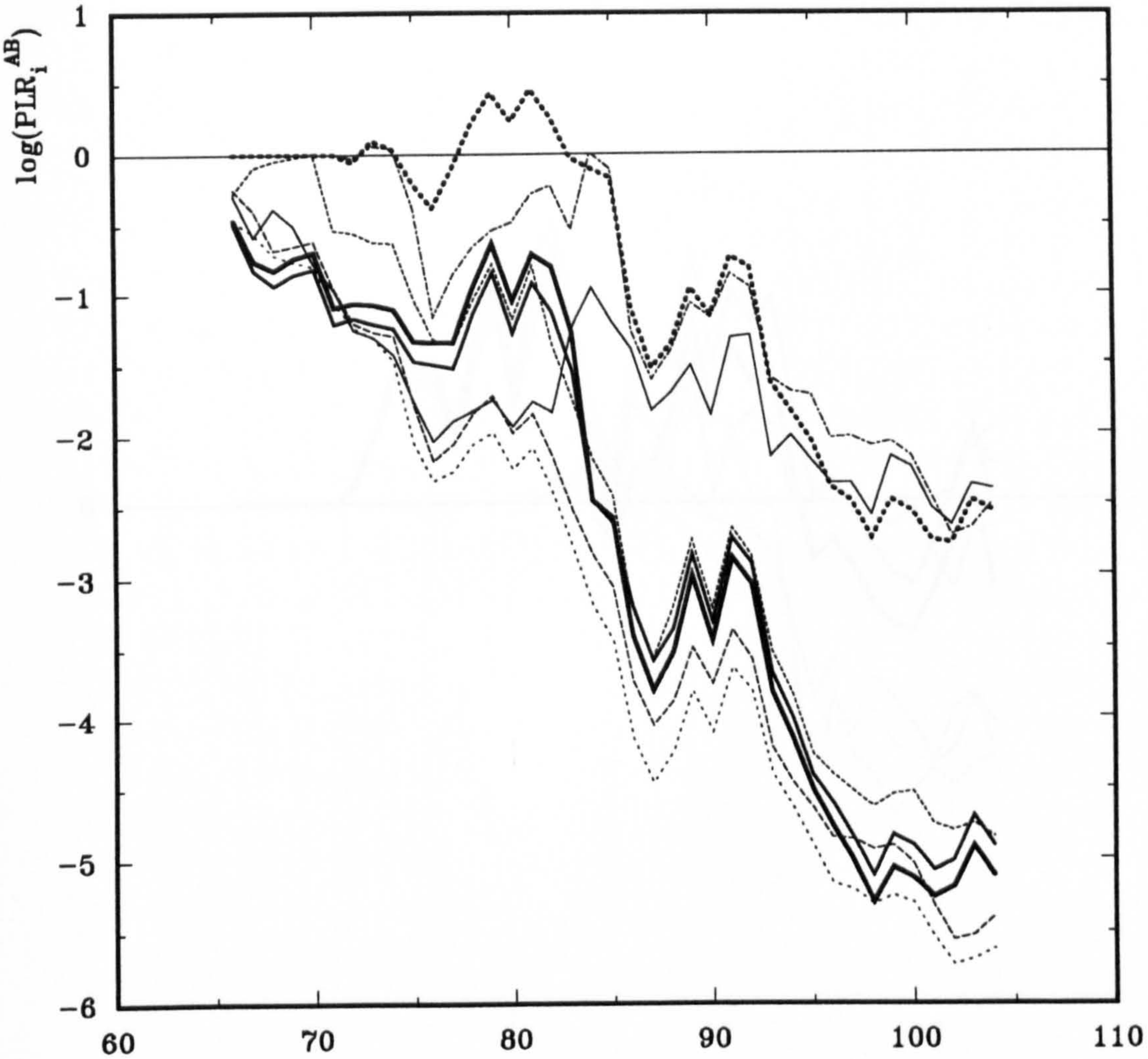


Figure B.6-27. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USPSCL*.

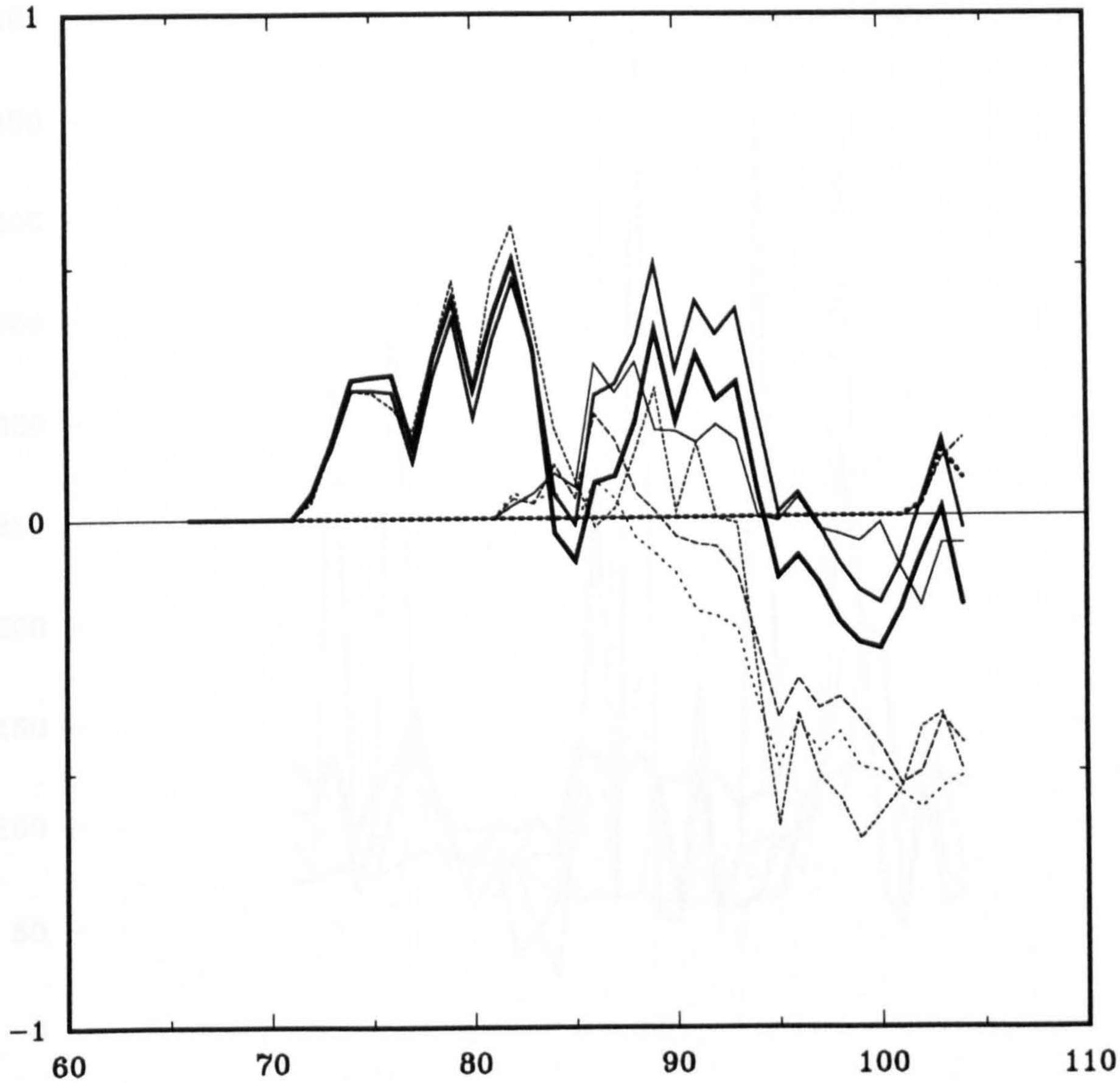


Figure B.6-28. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *USPSCL*.

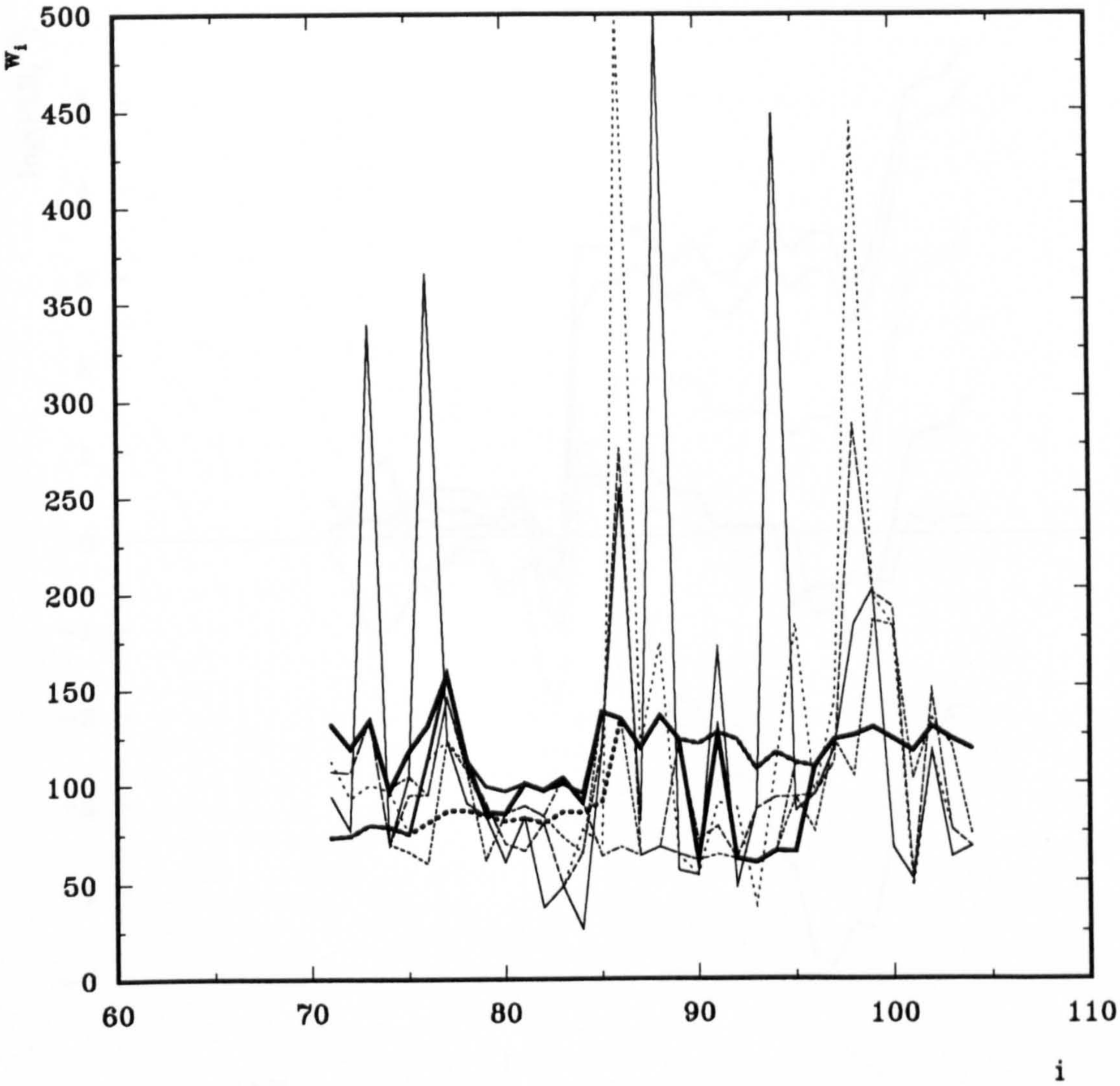


Figure B.6-29. Median predictions from the meta-predictors plotted against failure number for data set *USPSCL*.

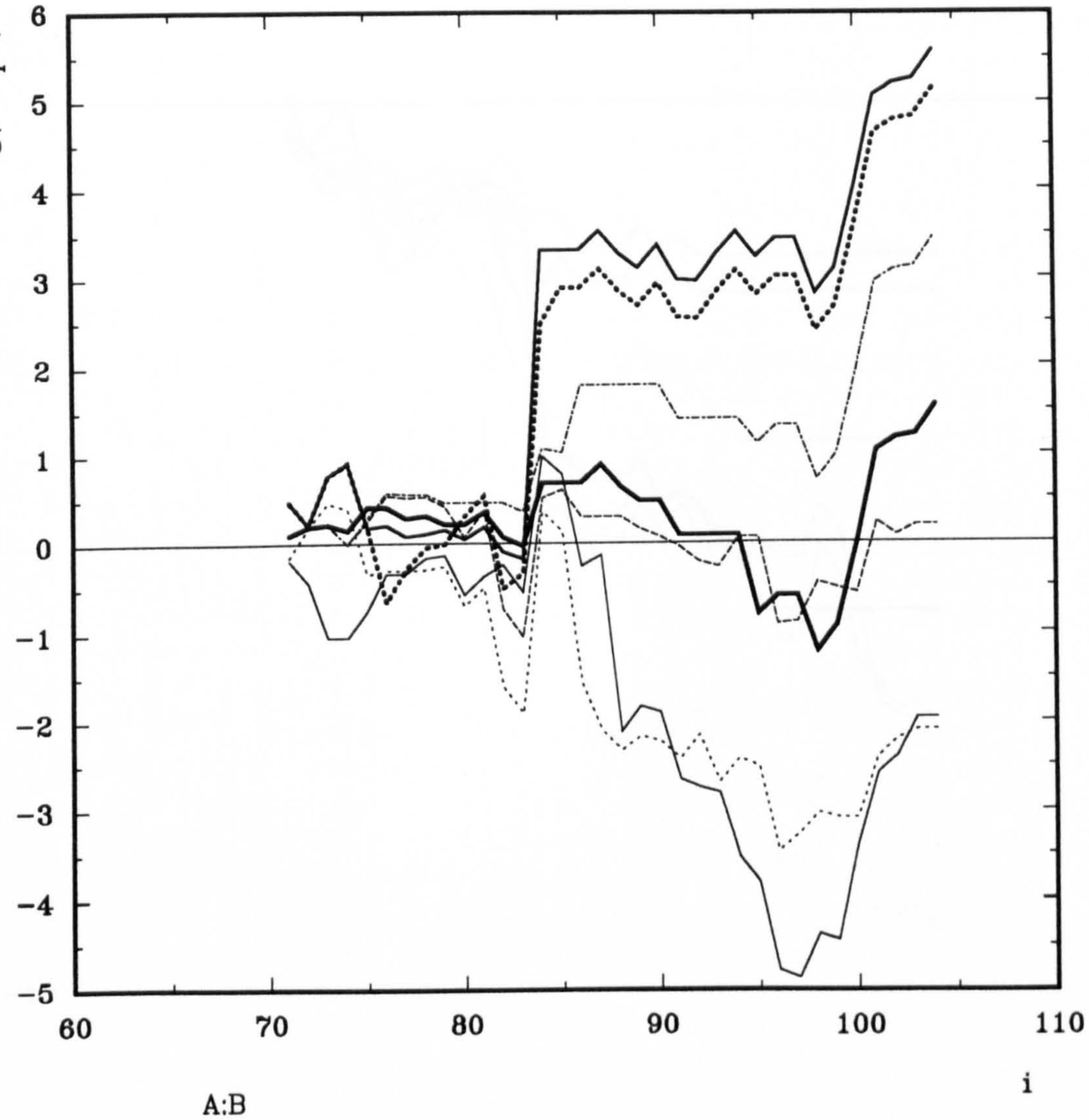


Figure B.6-30. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *USPSCL*.

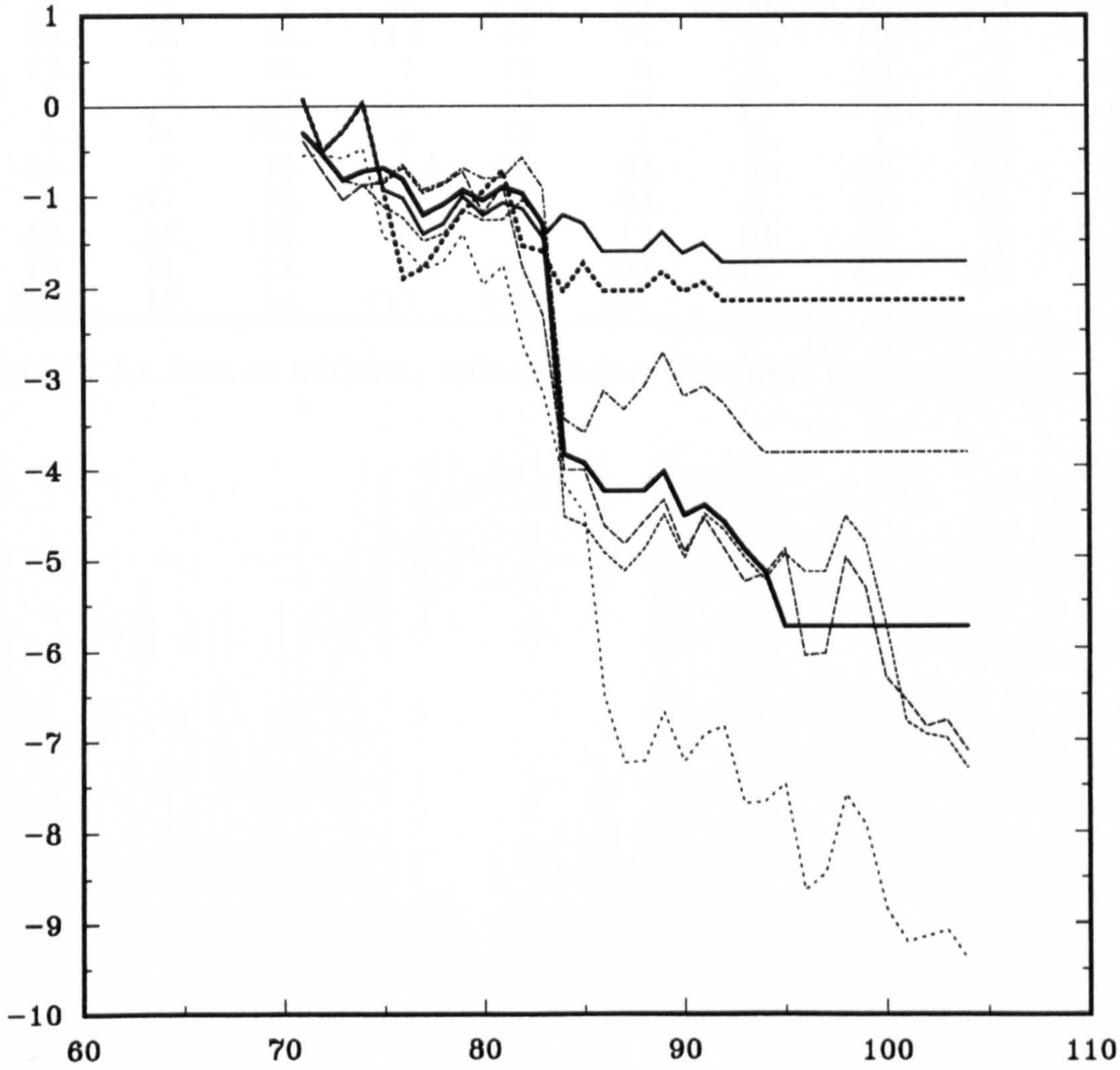


Figure B.6-31. *log(PLR)*-plots for the meta-predictors versus *DUS* for data set *USPSCL*.

B.7 Data Set USGENL

73.	43.	12.	48.	23.	6.	10.	12.	14.	17.
30.	41.	1.	99.	9.	45.	106.	70.	9.	36.
33.	52.	28.	113.	44.	31.	3.	10.	3.	8.
17.	3.	55.	7.	12.	6.	25.	30.	4.	38.
7.	4.	4.	13.	10.	40.	57.	38.	12.	8.
1.	21.	104.	8.	23.	1.	5.	1.	141.	3.
21.	3.	18.	0.5	75.	92.	6.	33.	29.	3.
2.	117.	30.	24.	5.	92.	7.	33.	13.	9.
68.	25.	132.	71.	19.	18.	10.	39.	7.	1.
14.	31.	28.	4.	145.	122.	349.	49.	123.	92.
220.	15.	34.	715.	819.	391.				

Table B.7-1. Data set *USGENL*; 106 inter-failure times (read from left to right).

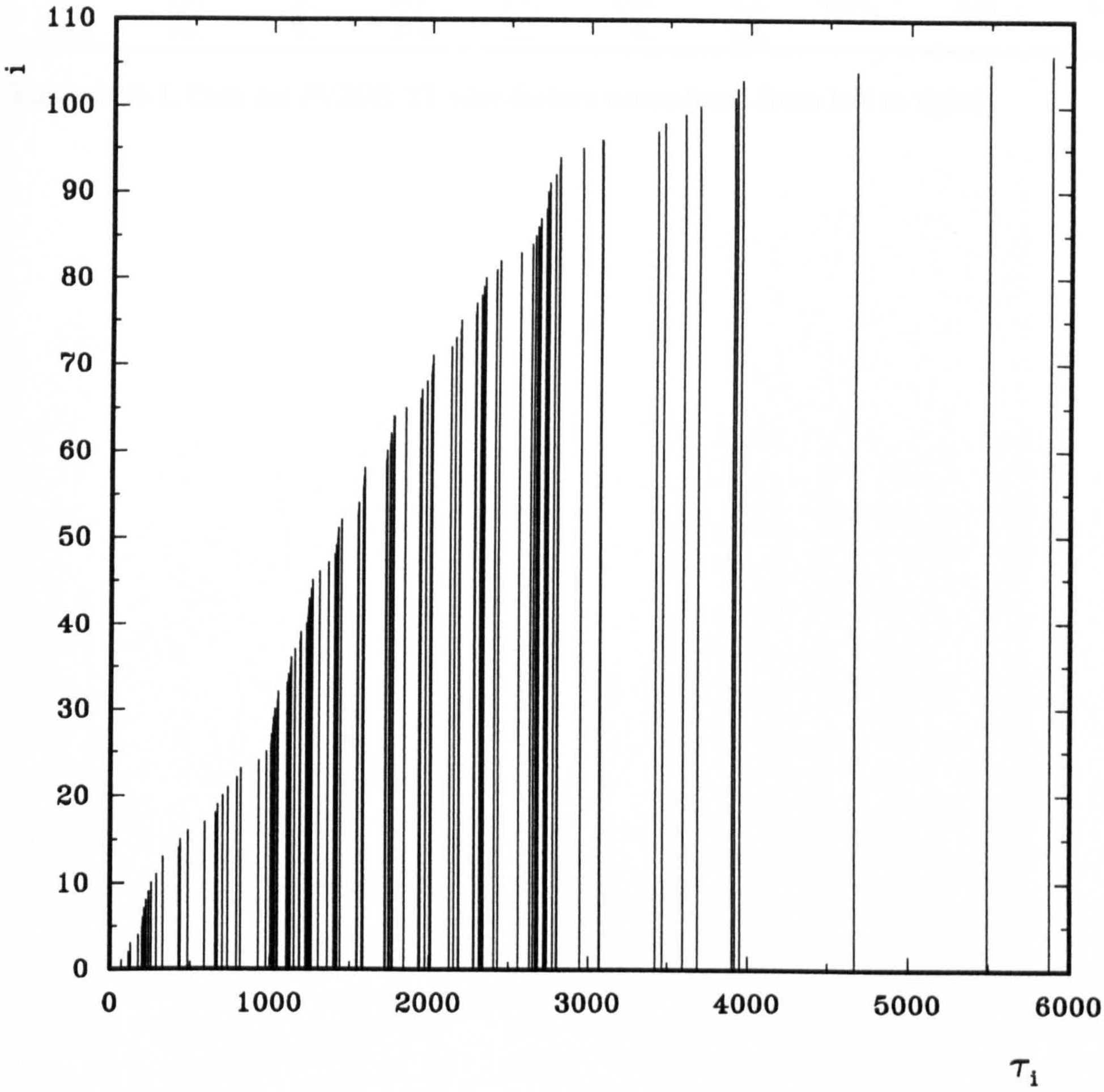


Figure B.7-2. Cumulative number of failures plotted against total elapsed time for data set *USGENL*.

B.8 Data Set PV200

60.	30.	540.	67.	40.	23.	5.	53.	4.	16.
94.	15.	5.	90.	77.	68.	15.	137.	23.	1.
104.	16.	9.	10.	12.	4.	10.			

Table B.8-1. Data set *PV200*; 27 inter-failure times (read from left to right).

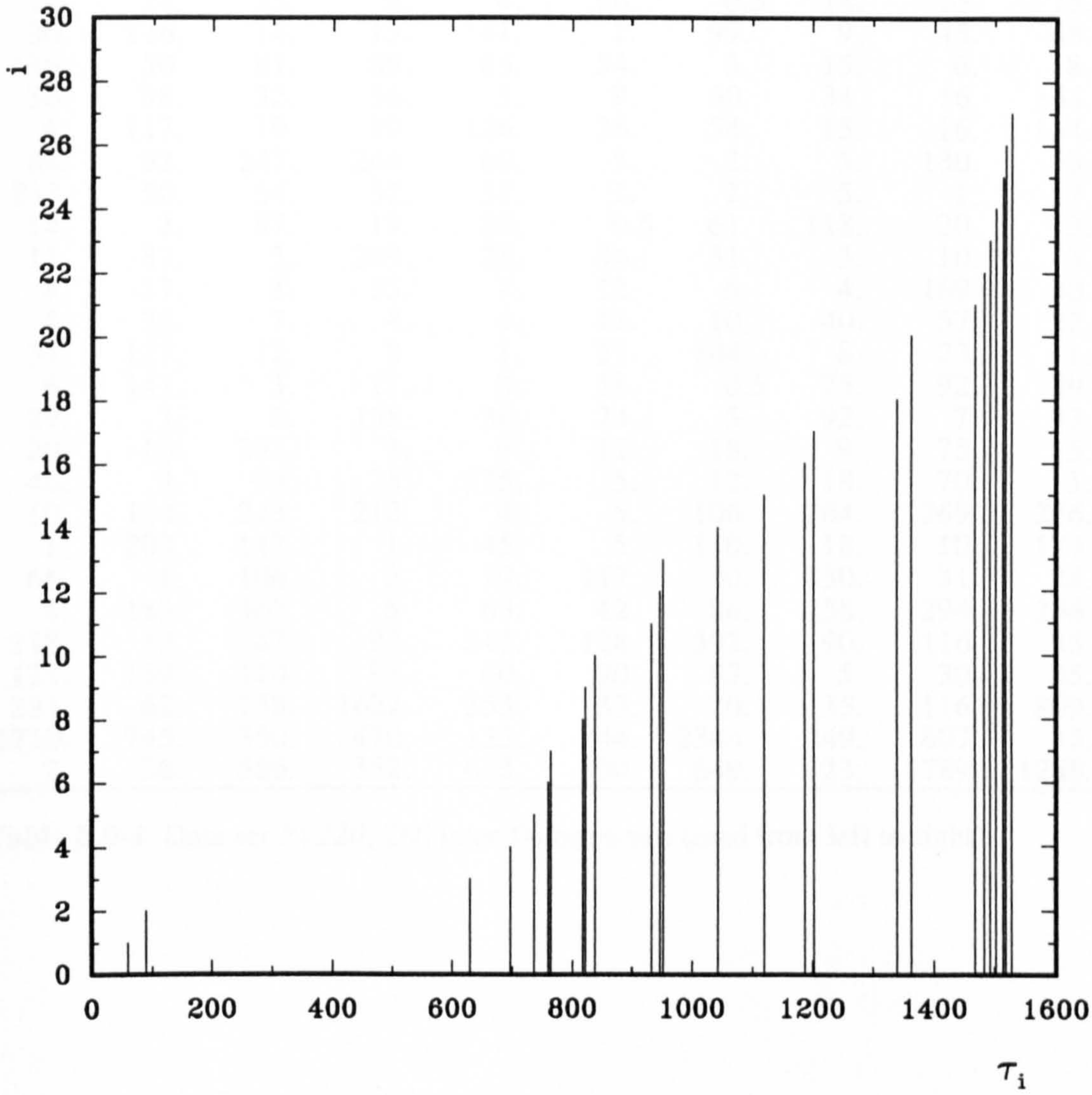


Figure B.8-2. Cumulative number of failures plotted against total elapsed time for data set *PV200*.

B.9 Data Set PV220

10.	6.	54.	25.	43.	12.	48.	23.	6.	10.
12.	14.	33.	9.	4.	66.	0.5	18.	15.	75.
30.	116.	14.	15.	41.	1.	99.	9.	45.	68.
36.	50.	81.	89.	85.	54.	3.	15.	6.	8.
36.	98.	32.	36.	5.	9.	60.	34.	16.	164.
6.	117.	19.	19.	126.	36.	54.	15.	16.	154.
84.	92.	247.	244.	60.	5.	2.	5.	130.	0.5
233.	50.	54.	52.	57.	1.	2.	5.	1.	17.
14.	2.	87.	19.	29.	0.5	61.	118.	20.	3.
11.	87.	5.	249.	28.	44.	31.	3.	10.	3.
8.	17.	3.	55.	7.	12.	6.	4.	169.	30.
4.	38.	7.	4.	4.	13.	10.	40.	57.	22.
37.	127.	12.	8.	1.	21.	104.	8.	23.	1.
6.	141.	3.	21.	3.	18.	0.5	75.	92.	39.
29.	3.	2.	158.	30.	24.	5.	92.	7.	33.
20.	16.	292.	3.	9.	12.	18.	9.	75.	15.
46.	9.	94.	25.	175.	5.	12.	18.	70.	3.
10.	114.	213.	212.	4.	5.	106.	264.	269.	276.
1.	203.	117.	1.	45.	5.	110.	18.	10.	179.
66.	1.	106.	2.	19.	117.	30.	130.	31.	28.
4.	183.	362.	5.	63.	42.	86.	258.	294.	256.
118.	13.	47.	92.	343.	128.	392.	90.	116.	35.
171.	139.	110.	98.	60.	90.	82.	5.	30.	35.
231.	62.	158.	1622.	353.	33.	70.	35.	116.	809.
1710.	745.	350.	470.	122.	244.	2384.	249.	607.	83.
2.	26.	586.	352.	673.	330.	649.	123.	1789.	1288.

Table B.9-1. Data set *PV220*; 260 inter-failure times (read from left to right).

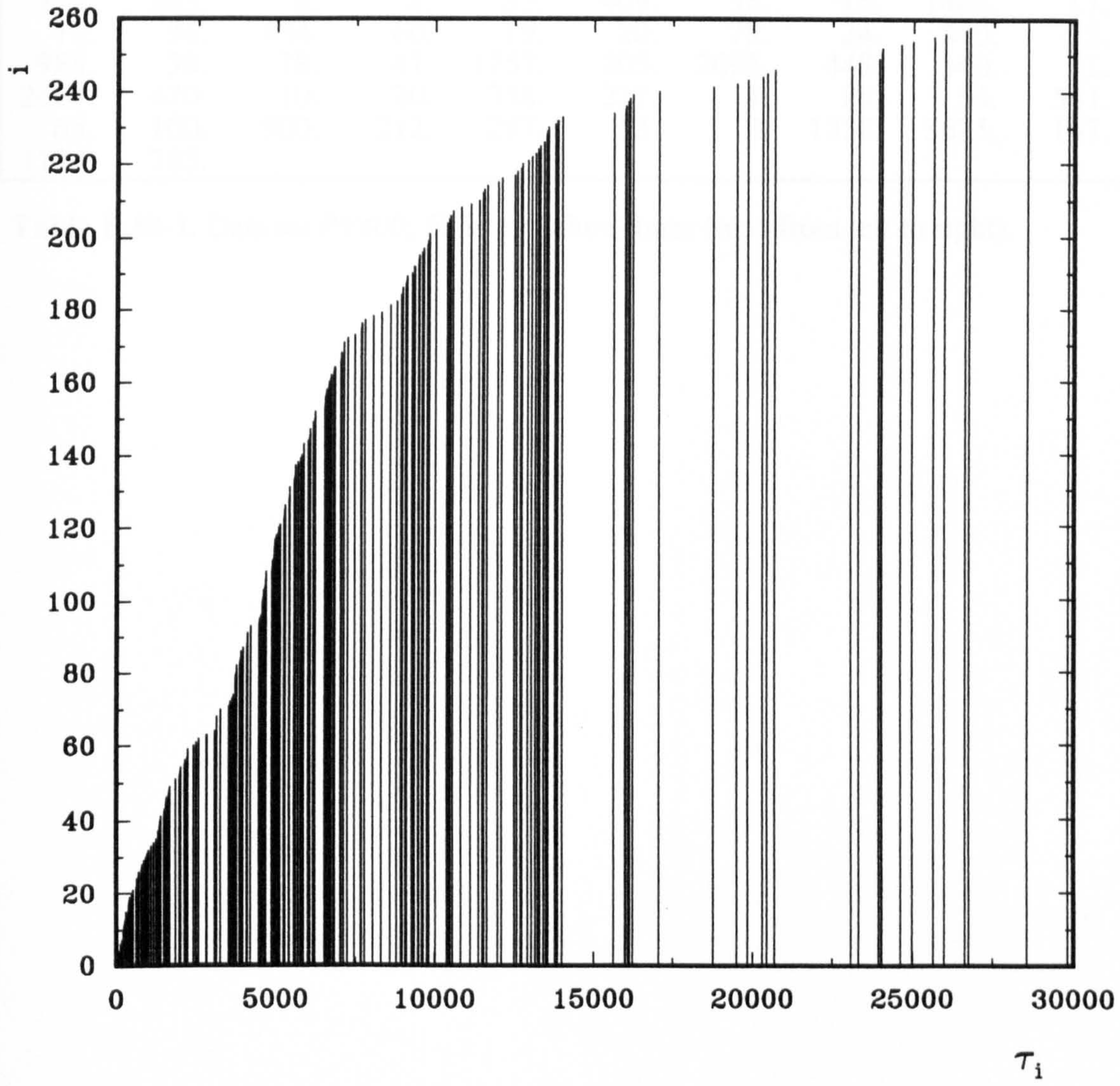


Figure B.9-2. Cumulative number of failures plotted against total elapsed time for data set *PV220*.

B.10 Data Set PV400

60.	75.	74.	333.	287.	1.	477.	404.	13.	1314.
472.	363.	6.	4.	55.	409.	36.	15.	1404.	17.
71.	34.	434.	60.	19.	20.	79.	24.	540.	52.
988.	38.	78.	41.	1757.	205.	2095.	448.	340.	1.
2668.	470.	10.	20.	338.	217.	5.	28.	56.	561.
65.	100.	900.	212.	287.	53.	3.	1338.	3635.	197.
1174.	783.								

Table B.10-1. Data set *PV400*; 62 inter-failure times (read from left to right).

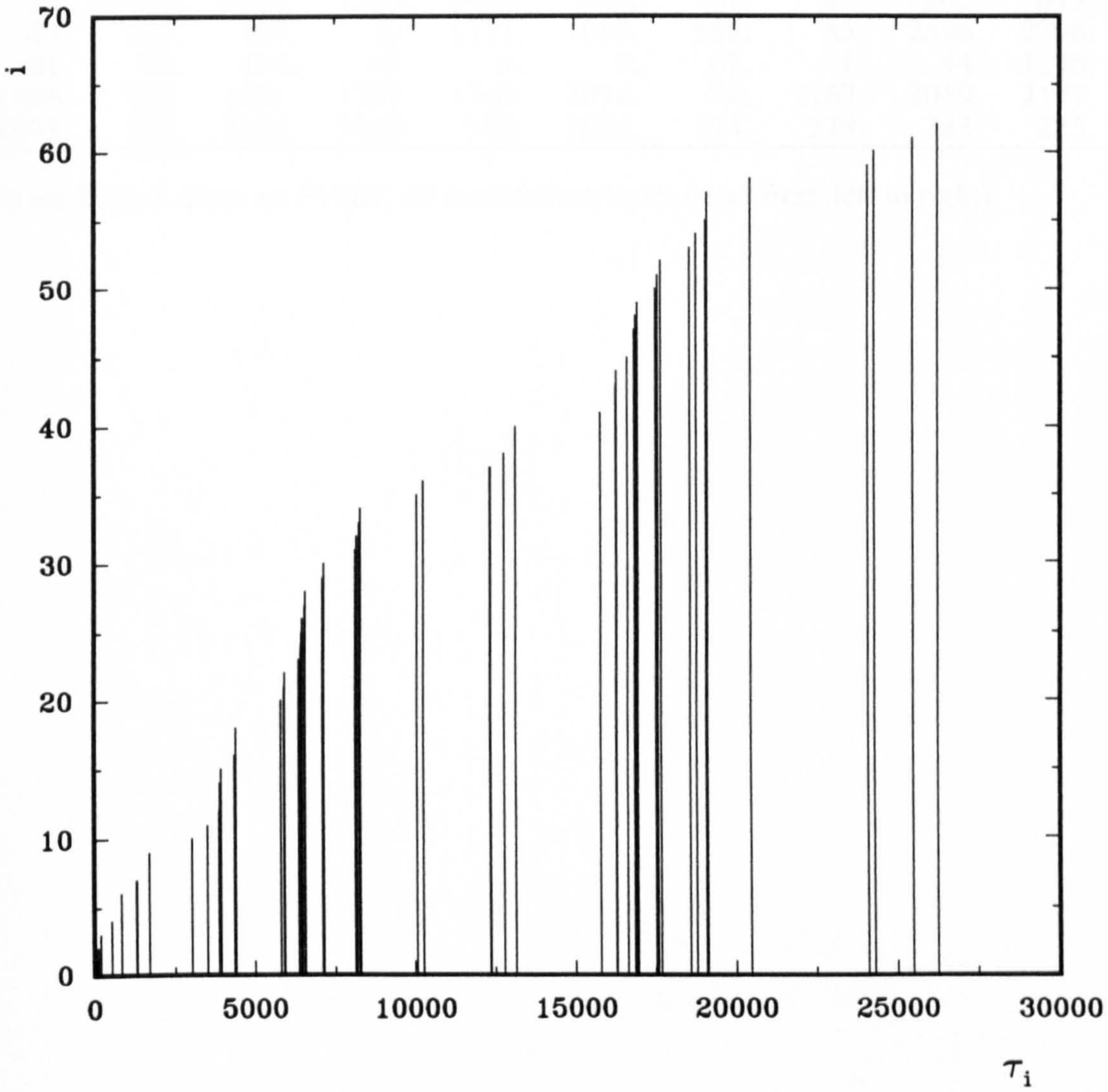


Figure B.10-2. Cumulative number of failures plotted against total elapsed time for data set *PV400*.

B.11 Data Set PV502

41.	59.	98.	1594.	25.	98.	398.	324.	228.	78.
33.	453.	1020.	1365.	2962.	925.	57.	43.	202.	649.
43.	185.	157.	30.	1771.	1088.	556.	55.	2596.	2296.
81.	61.	476.	63.	3.	3.	62.	1.	44.	1236.
1406.	109.	1471.	1797.	1749.	2096.	76.	2167.	2059.	2177.
1893.	198.	3326.	3100.	586.	2686.	124.	229.	783.	225.

Table B.11-1. Data set *PV502*; 60 inter-failure times (read from left to right).

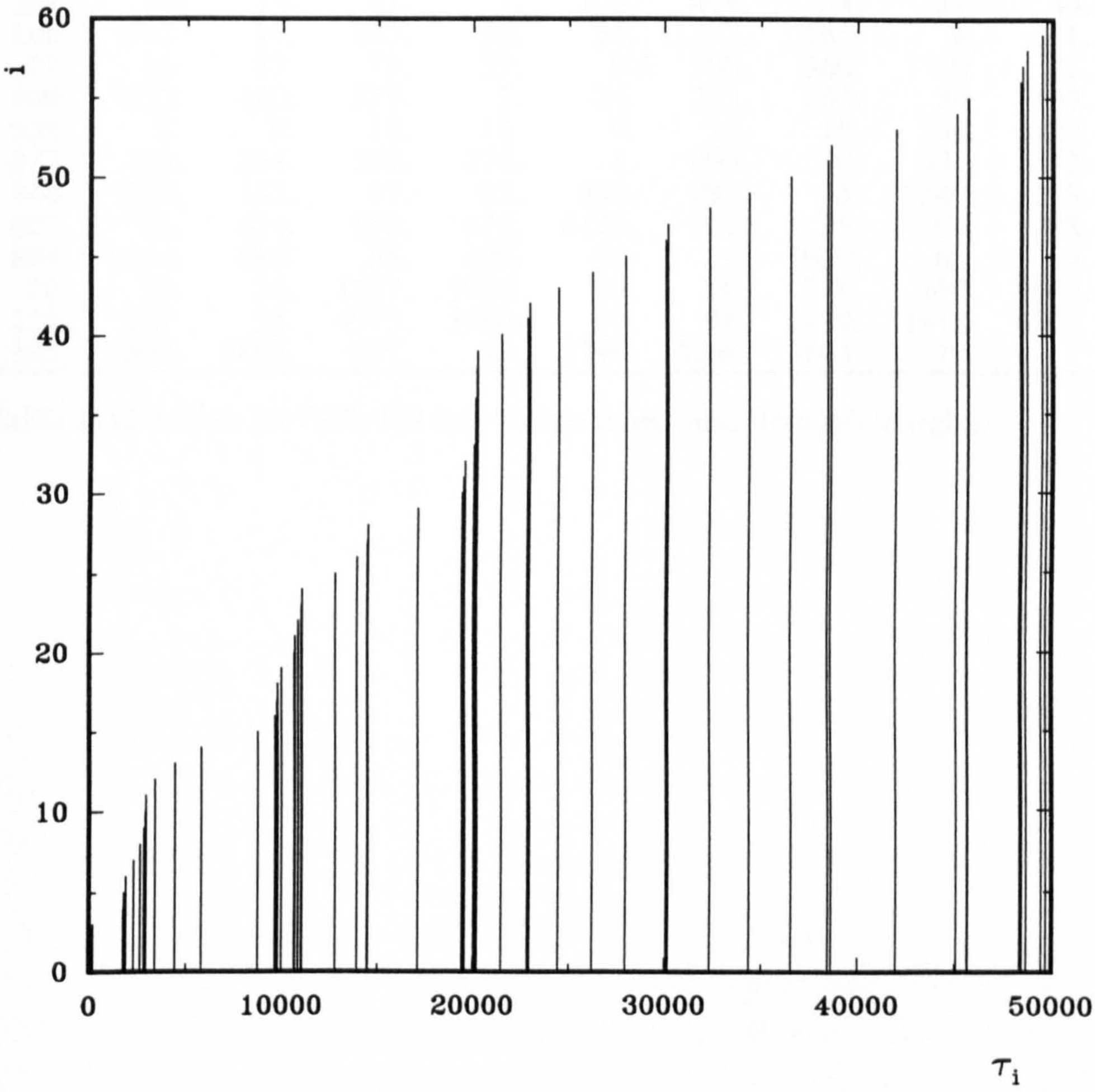


Figure B.11-2. Cumulative number of failures plotted against total elapsed time for data set *PV502*.

B.12 Data Set TSW

760.	758.	303.	6.	22.	14.	42.	4.	84.	15.
221.	14.	15.	41.	1.	153.	409.	54.	24.	44.
180.	397.	19.	145.	36.	54.	1337.	163.	8.	1.
17.	16.	87.	19.	29.	0.5	300.	360.	10.	11.
100.	252.	460.	179.	3.	24.	253.	163.	54.	137.
328.	3.	9.	12.	18.	9.	75.	15.	366.	428.
212.	115.	264.	269.	276.	1.	999.	30.	495.	472.
344.	550.	131.	47.	92.	863.	991.	35.	9549.	249.
607.	83.	614.	352.	673.	4179.	111.	75.	407.	288.
894.	1314.	845.	55.	409.	36.	15.	1960.	60.	19.
20.	79.	24.	1737.	7984.	10.	20.	338.	250.	1682.
212.	287.	56.	4973.	3500.	59.	98.	2439.	1812.	6203.
385.	3500.	4892.	687.	62.	2796.	3268.	3845.	76.	

Table B.12-1. Data set *TSW*; 129 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	F	F	B	F	A	F	A	F	B	F	B
GO	F	F	F	B	F	A	F	A	F	A	F	B
MO	F	E	F	A	F	A	F	A	F	A	F	A
DU	C	F	F	A	F	A	F	A	F	A	F	A
LM	F	F	F	A	F	A	F	A	F	A	F	A
LNHPP	F	F	F	A	F	A	F	A	F	A	F	A
LV	A	F	A	A	A	A	A	A	A	A	A	A
KL	A	F	A	A	A	A	A	A	A	A	A	A
CM1	F	F	F	A	D	A	E	A	F	A	F	A
CM2	F	F	F	A	F	A	F	A	F	A	F	A
CM3	F	F	F	A	E	A	F	A	F	A	F	A
OTY20	C	F	C	A	B	A	C	A	C	A	C	A
OTY50	F	F	F	A	E	A	F	A	F	A	F	A
OTL	C	F	C	A	D	A	D	A	D	A	D	A
OTL20	C	F	C	A	B	A	B	A	C	A	C	A
OTL50	C	F	D	A	C	A	D	A	D	A	D	A

Table B.12-2.1. *u*- and *y*-plot significance levels for data set *TSW* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
D	B	D	B	A	B	F	A	D	A	F	A	D	A	B	C

Table B.12-2.2. *u*- and *y*-plot significance levels for data set *TSW* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

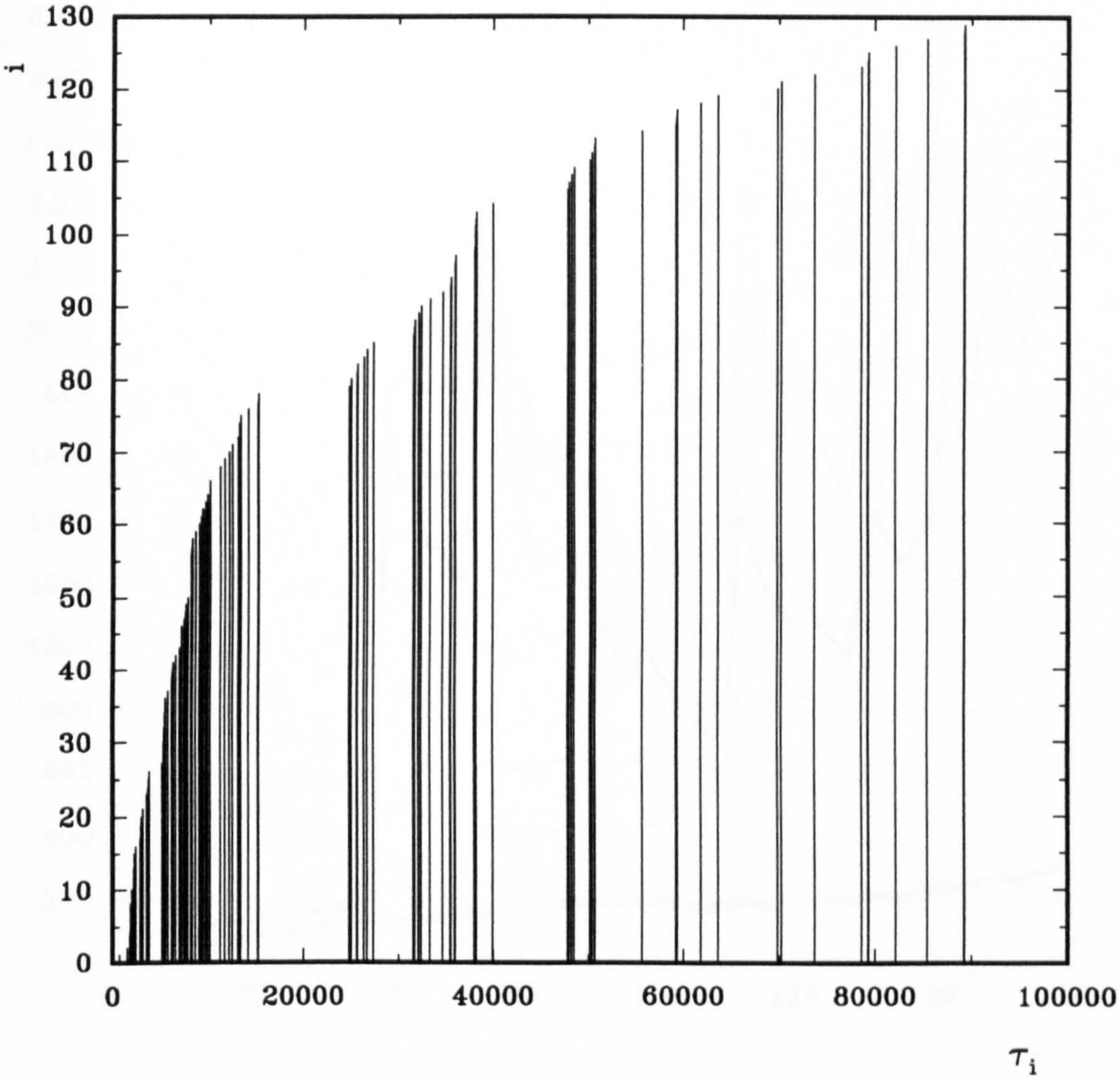


Figure B.12-3. Cumulative number of failures plotted against total elapsed time for data set *TSW*.

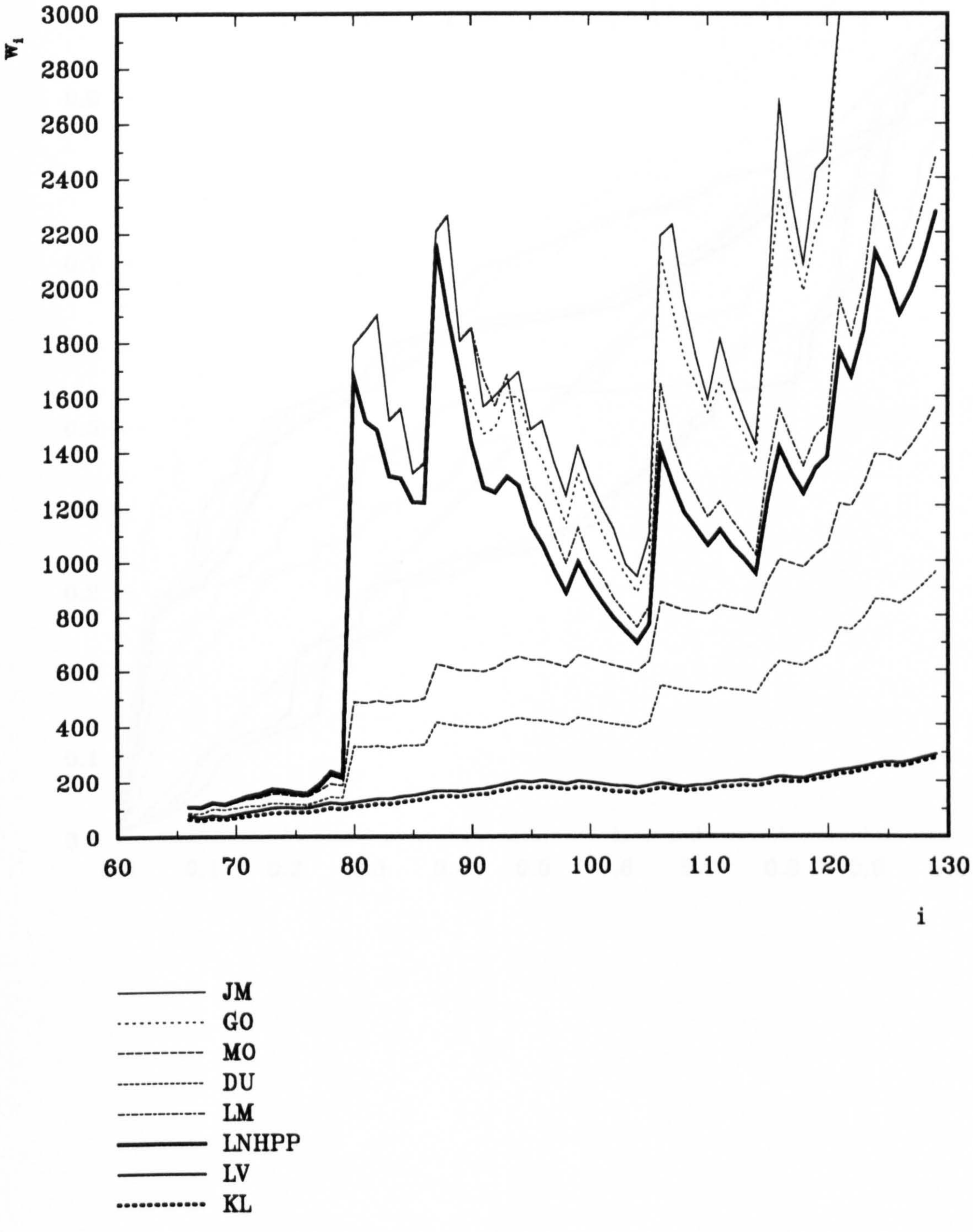


Figure B.12-4. Median predictions from the raw parametric predictors plotted against failure number for data set *TSW*.

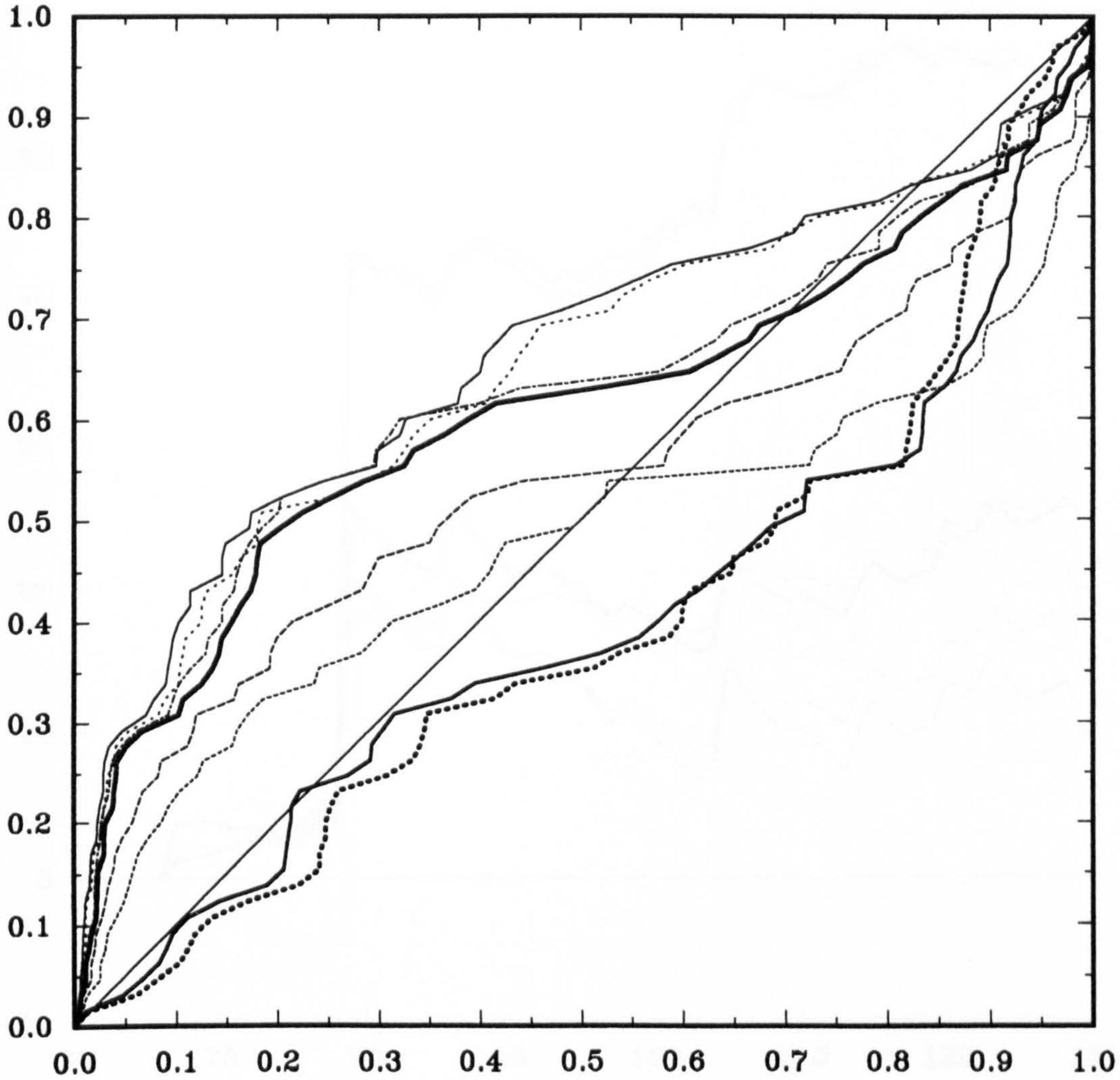


Figure B.12-5. *u*-plots for the raw parametric predictors for data set *TSW*.

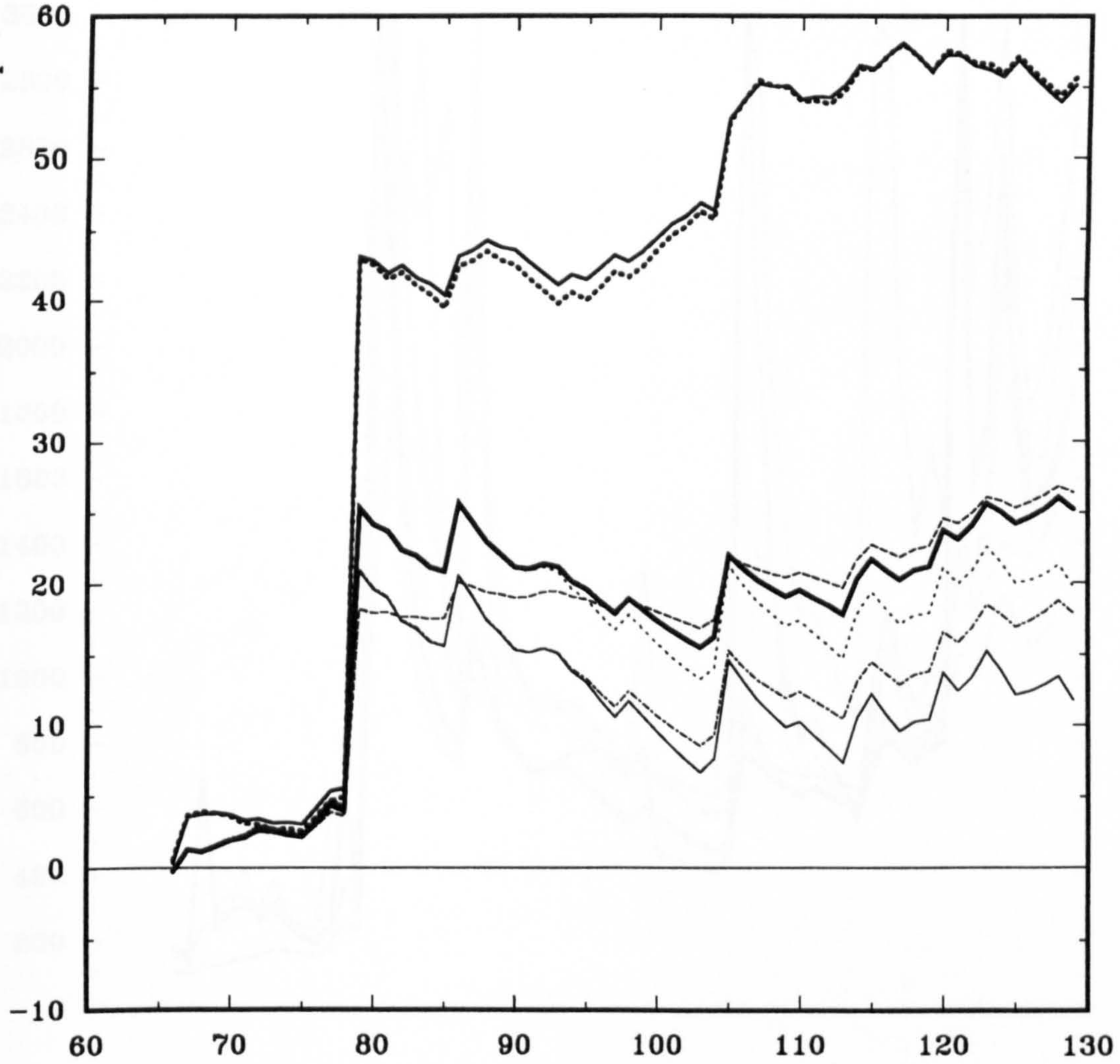


Figure B.12-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *TSW*.

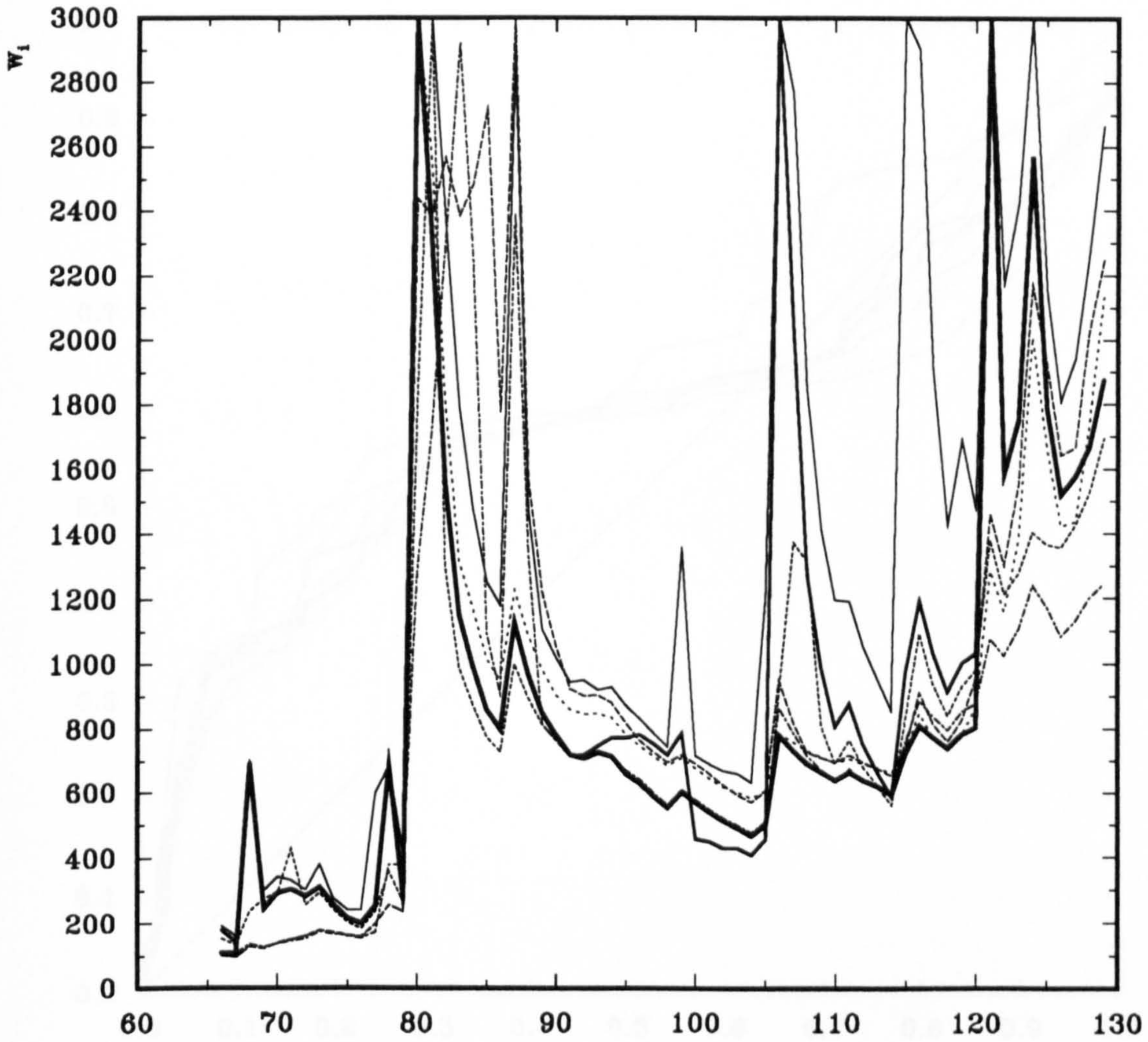
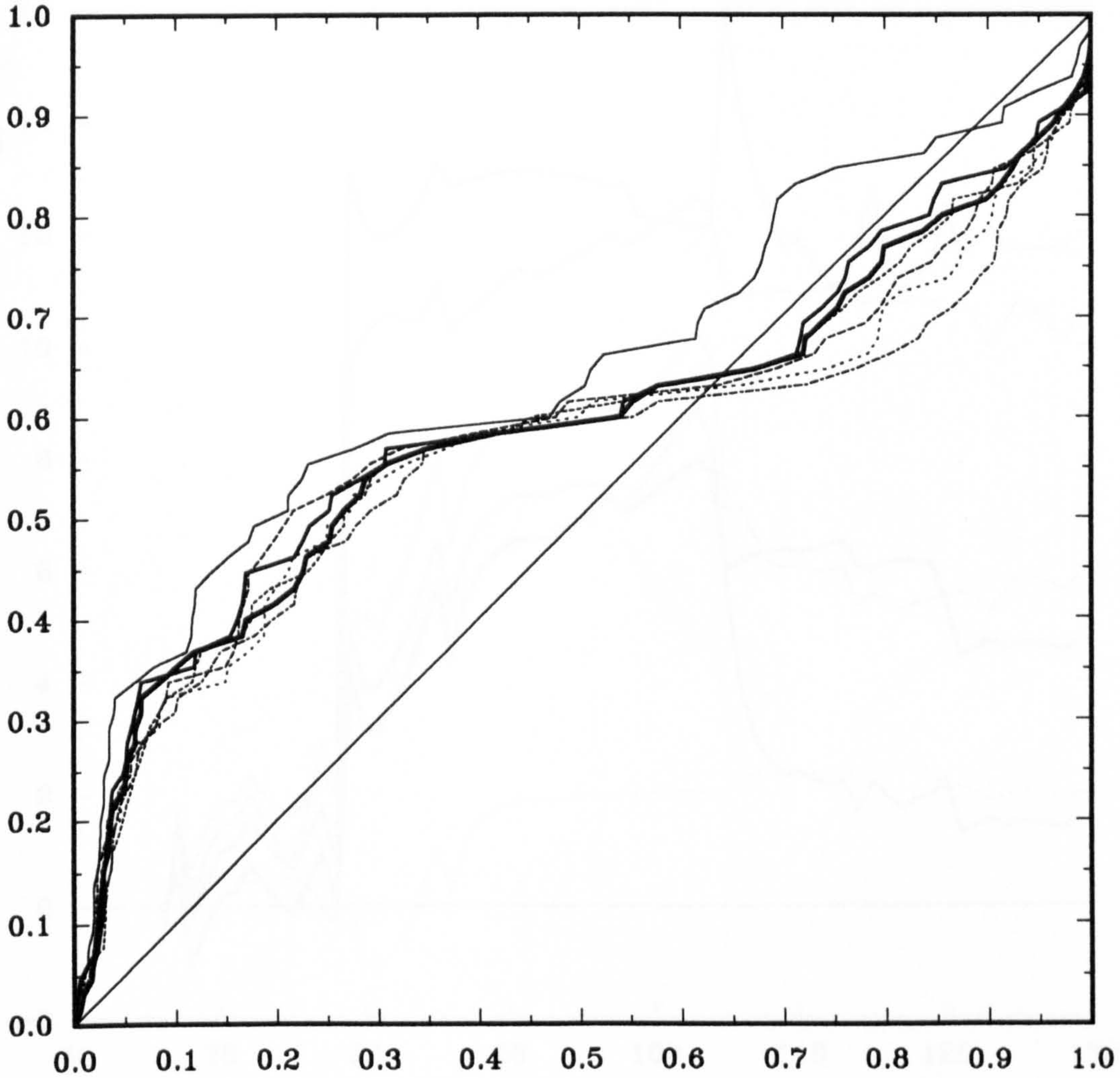


Figure B.12-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *TSW*.



CM1
CM2
CM3
OTY20
OTY50
OTL
OTL20
OTL50

Figure B.12-8. *u*-plots for the raw non-parametric predictors for data set *TSW*.

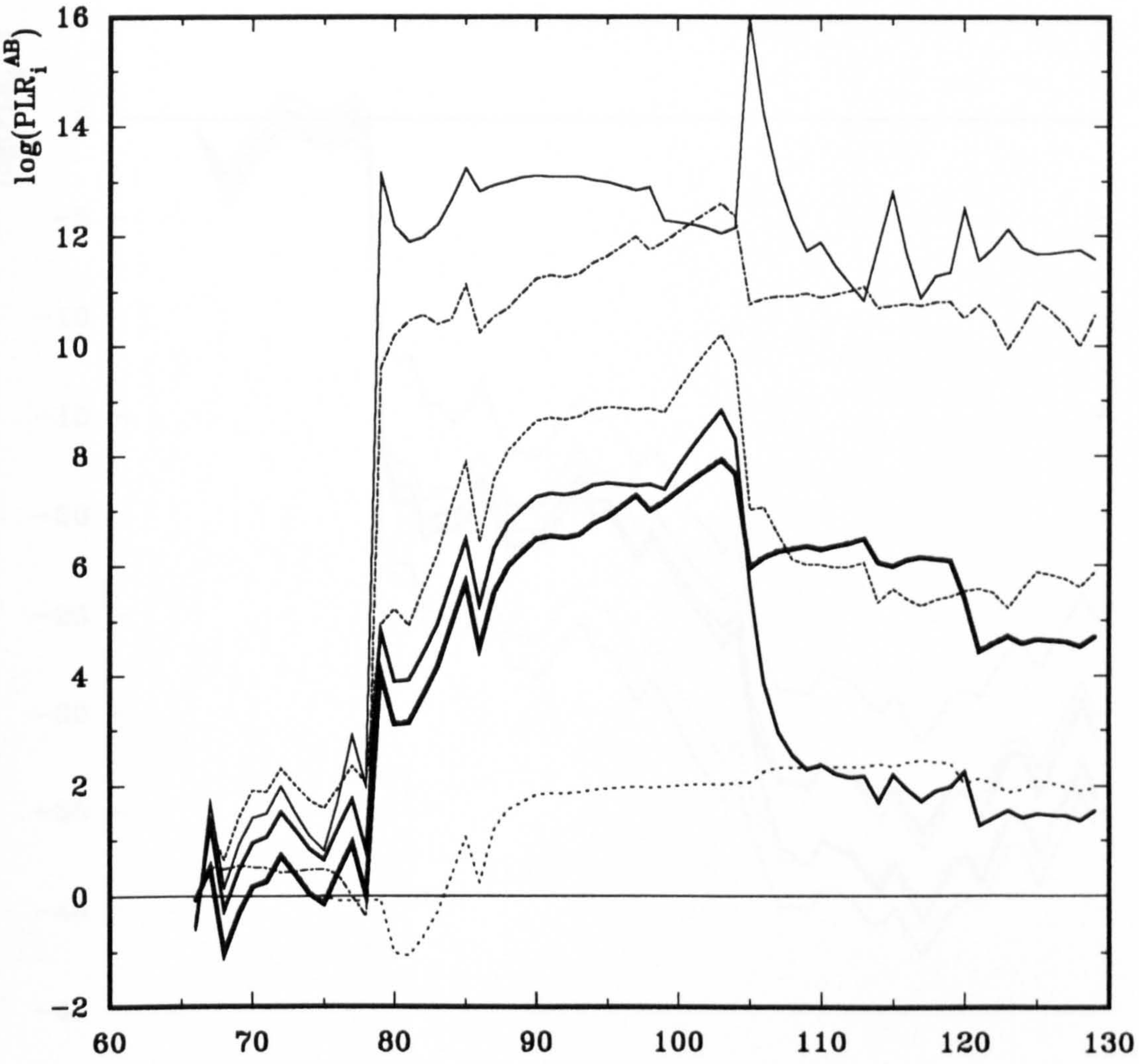


Figure B.12-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *TSW*.

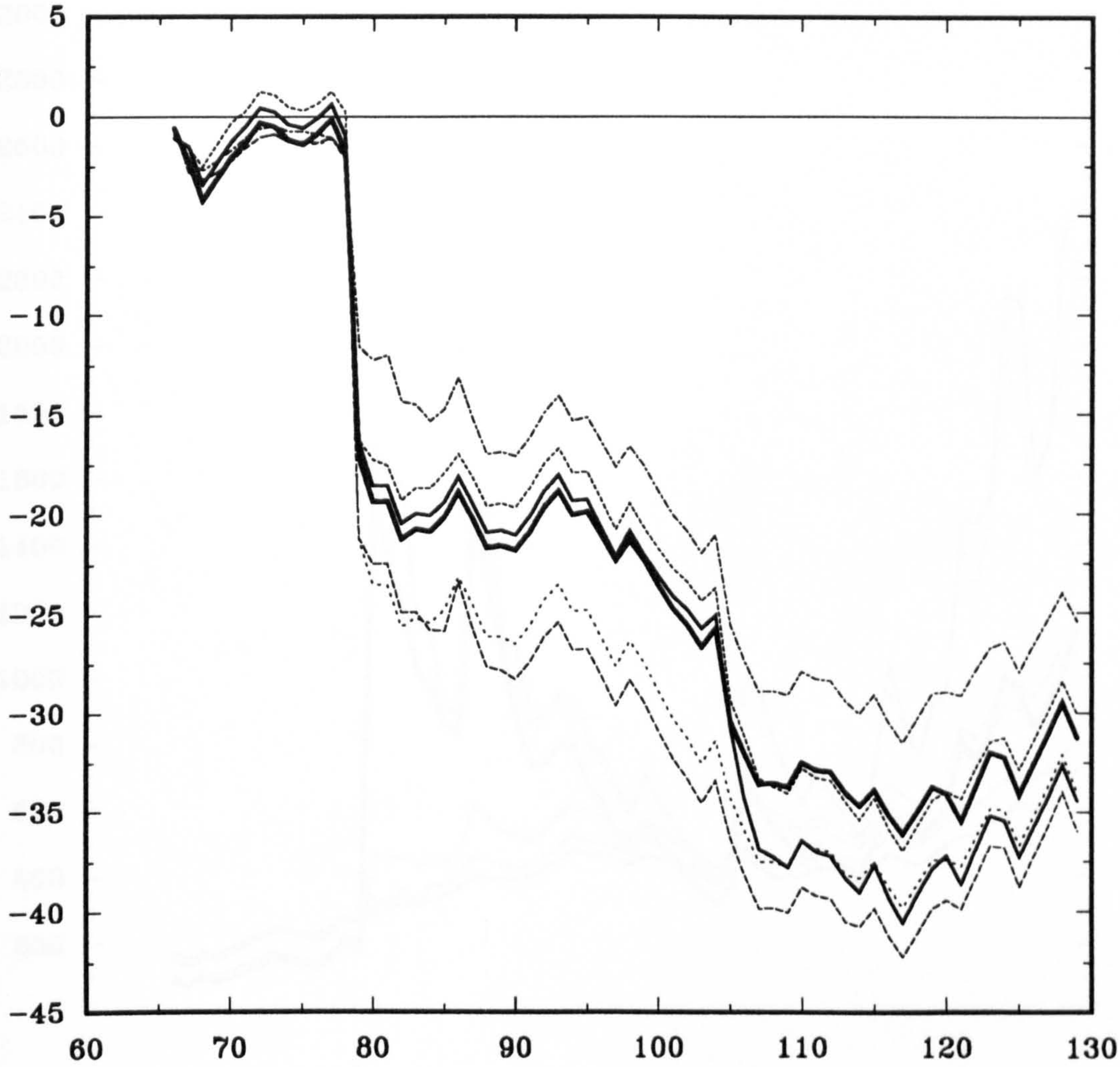


Figure B.12-10. *log(PLR)*-plots for the raw non-parametric predictors versus *LV* for data set *TSW*.

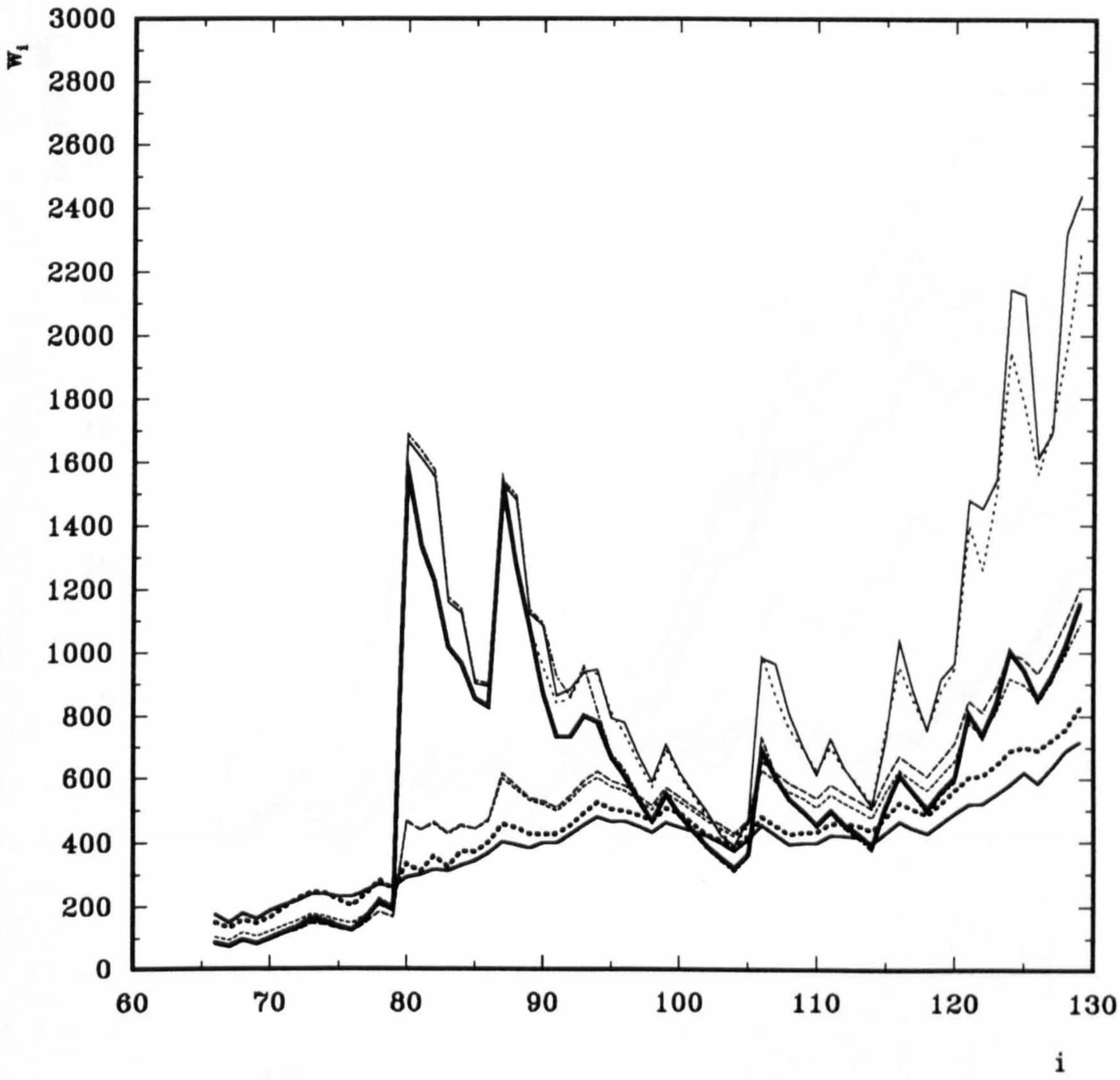


Figure B.12-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *TSW*.

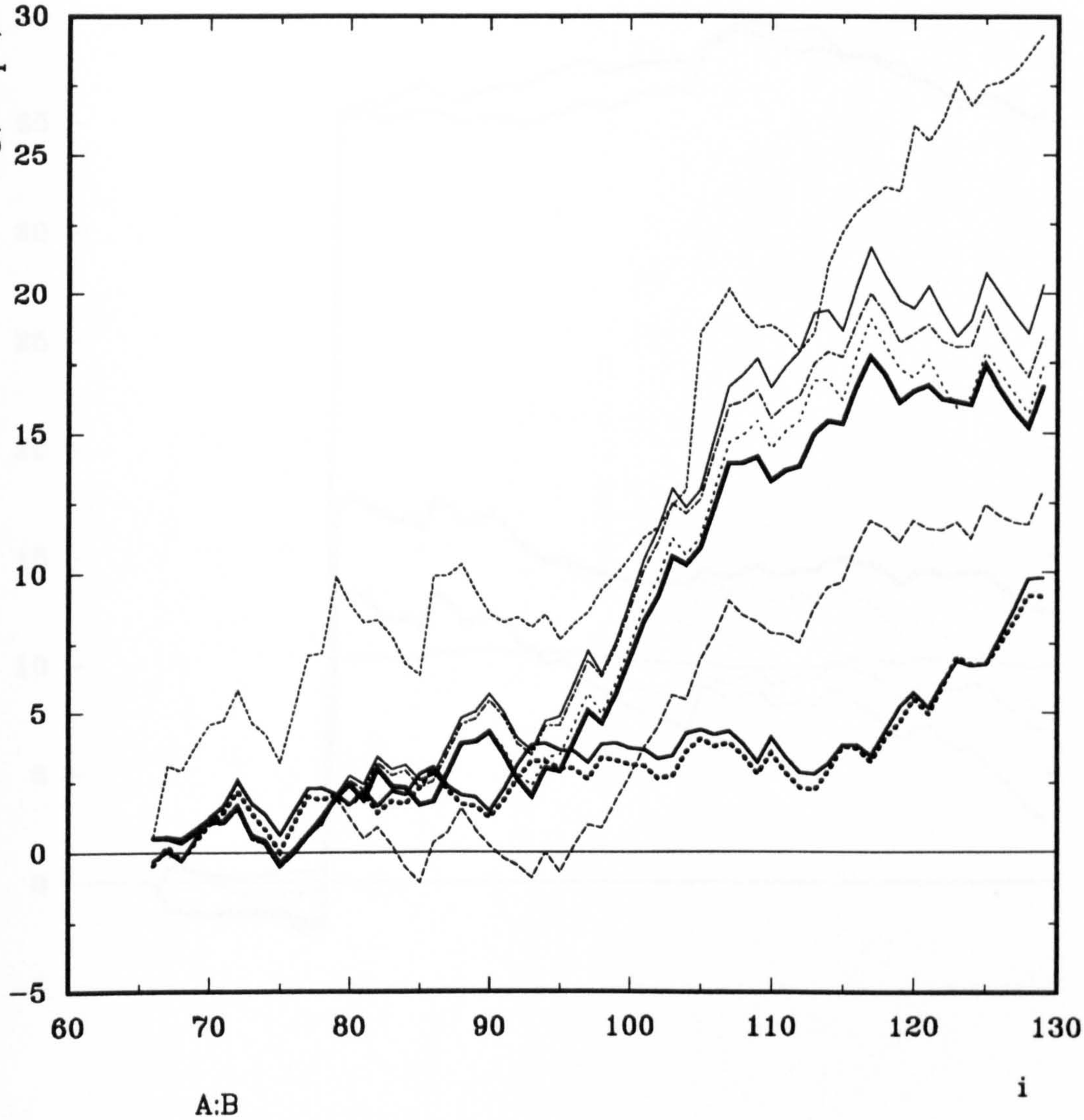


Figure B.12-12. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *TSW*.

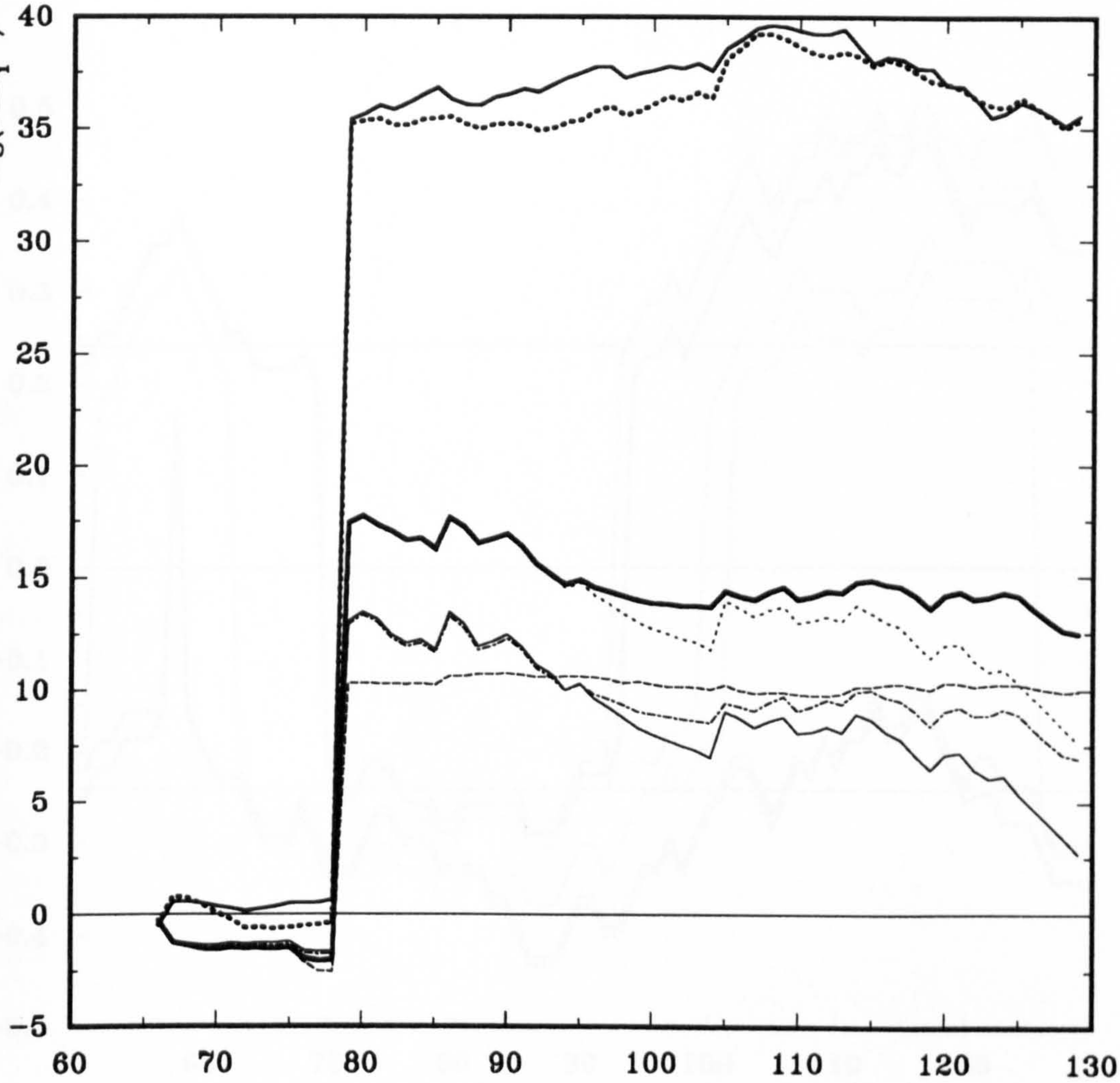


Figure B.12-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *TSW*.

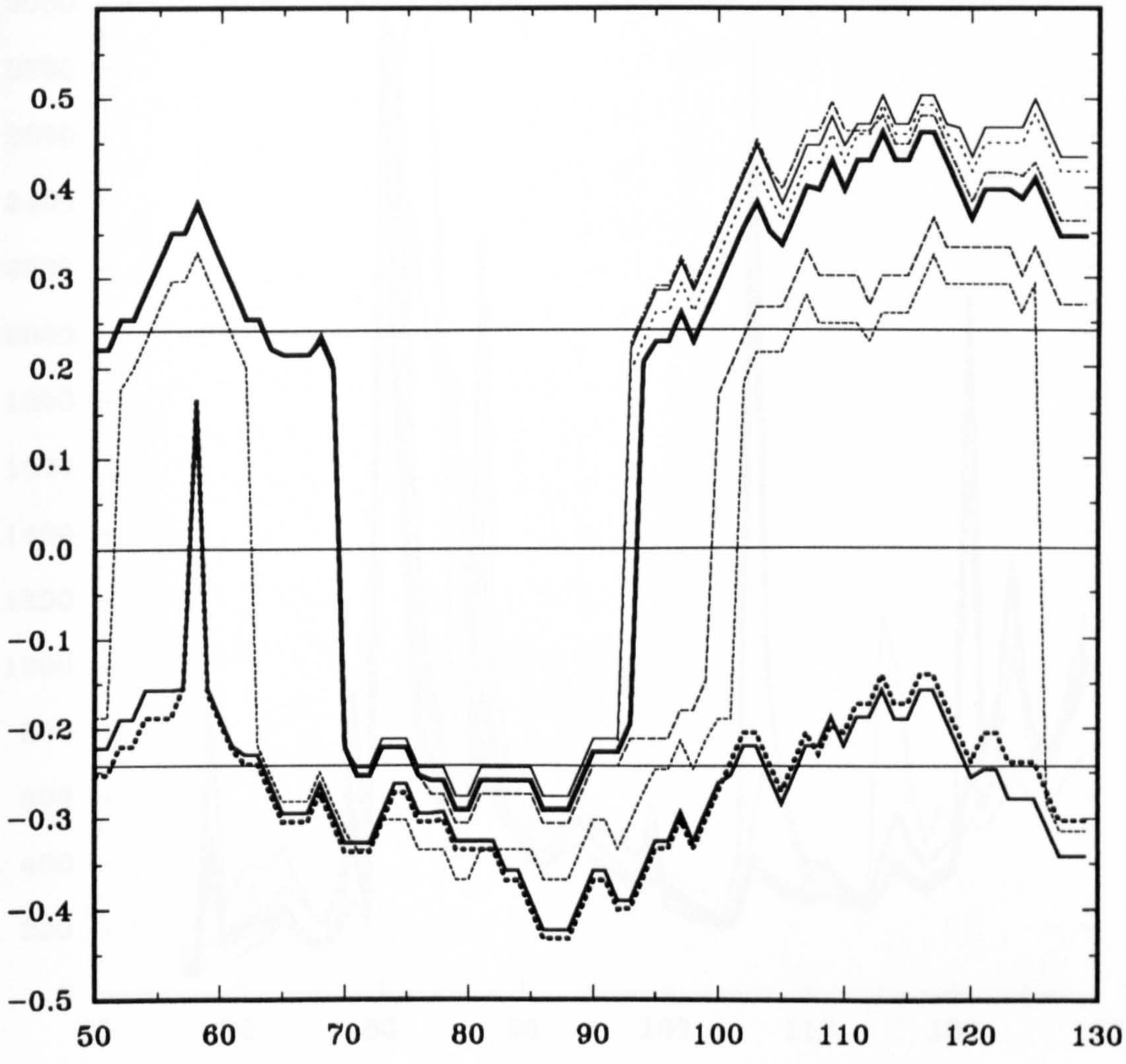


Figure B.12-14. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *TSW*.

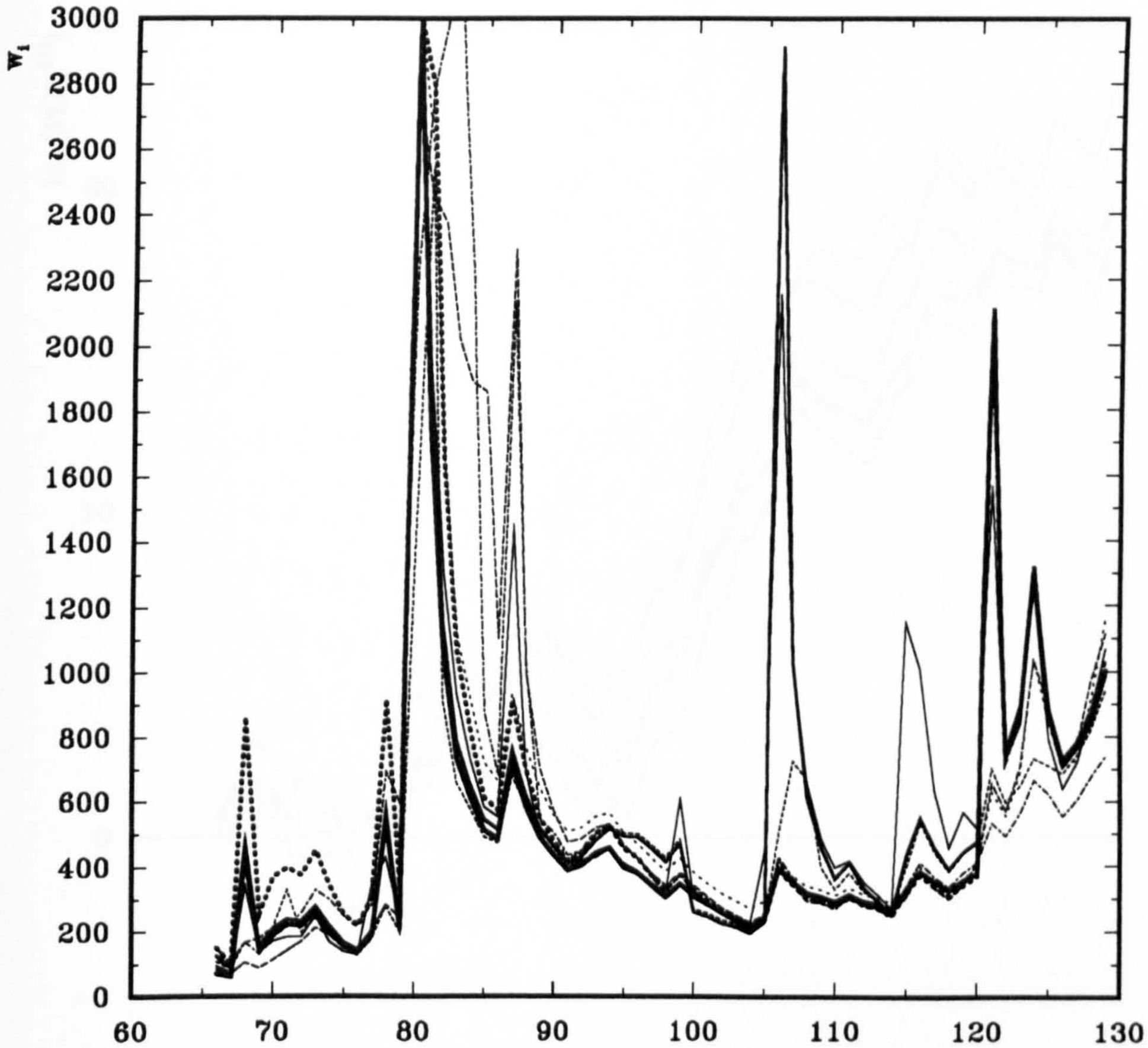


Figure B.12-15. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *TSW*.

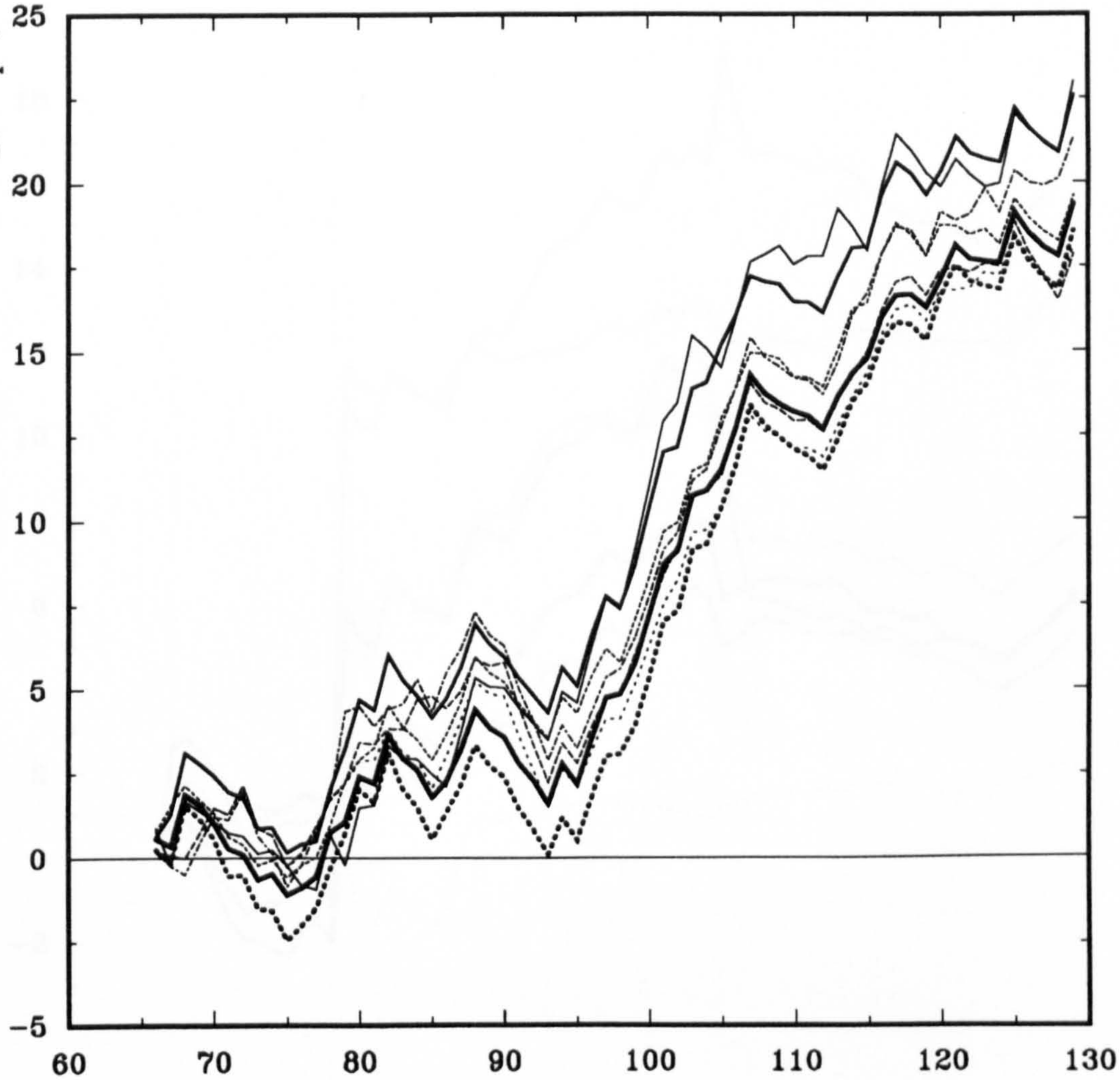


Figure B.12-16. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *TSW*.

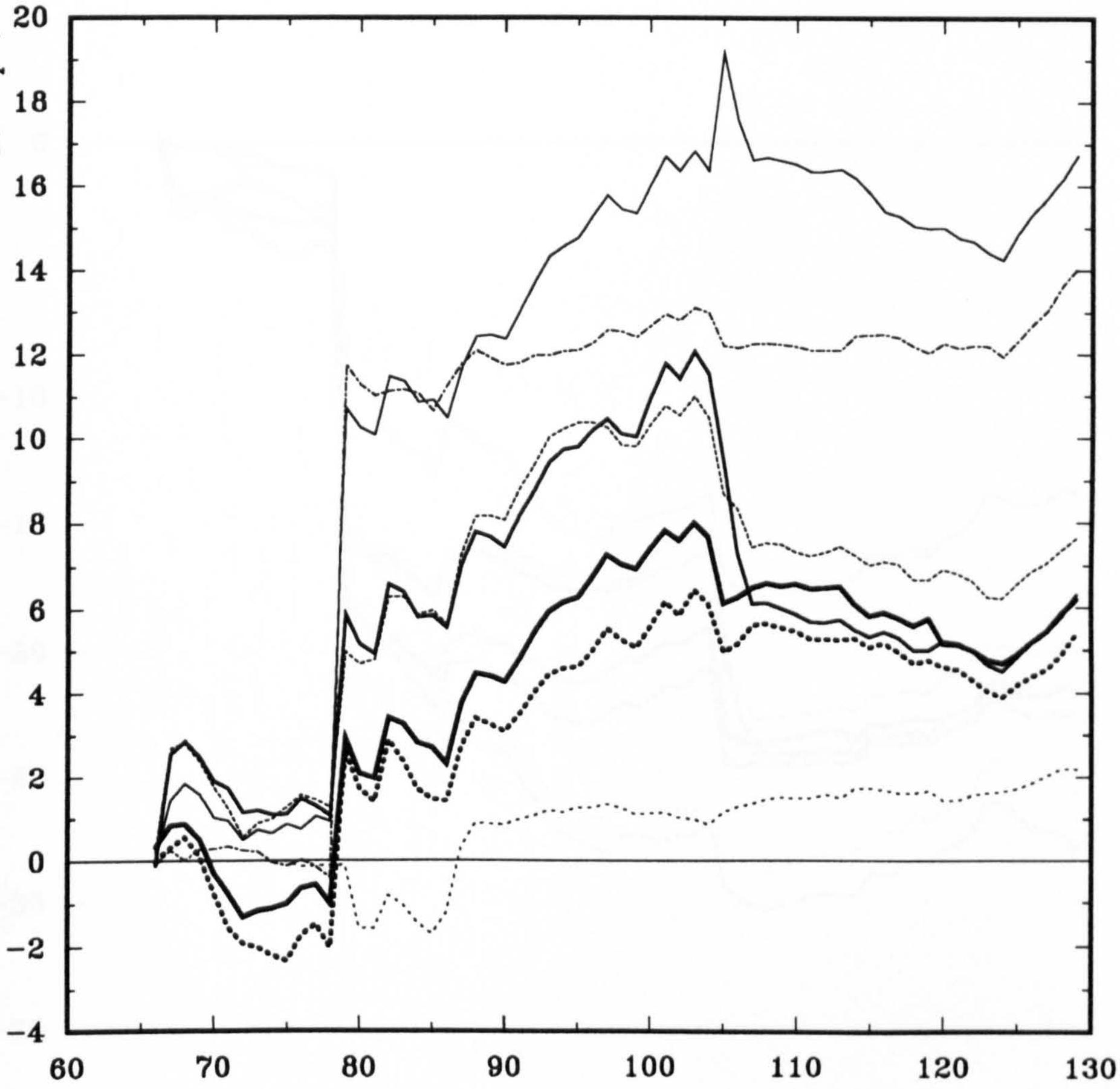


Figure B.12-17. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *TSW*.

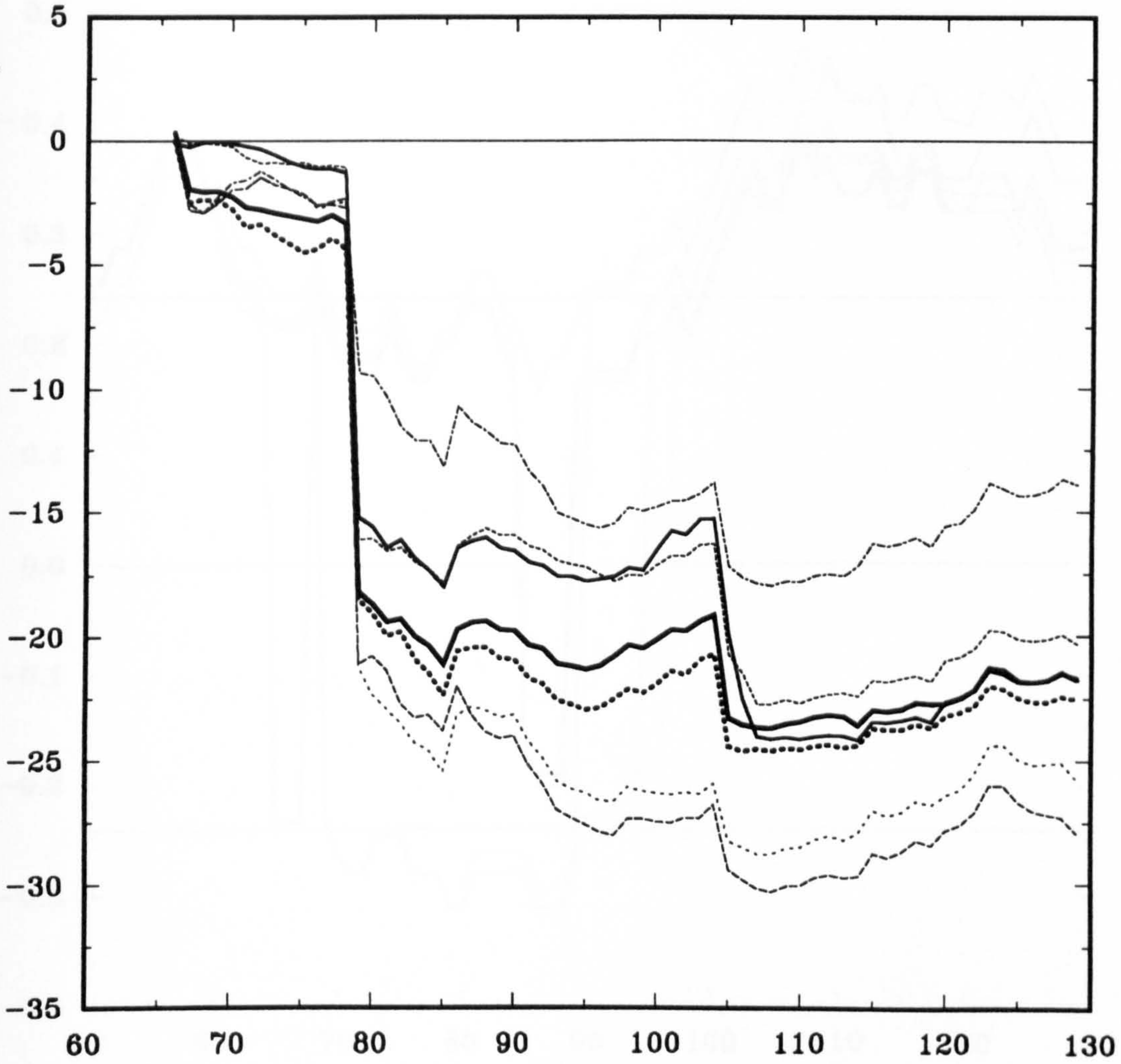


Figure B.12-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *LVS* for data set *TSW*.

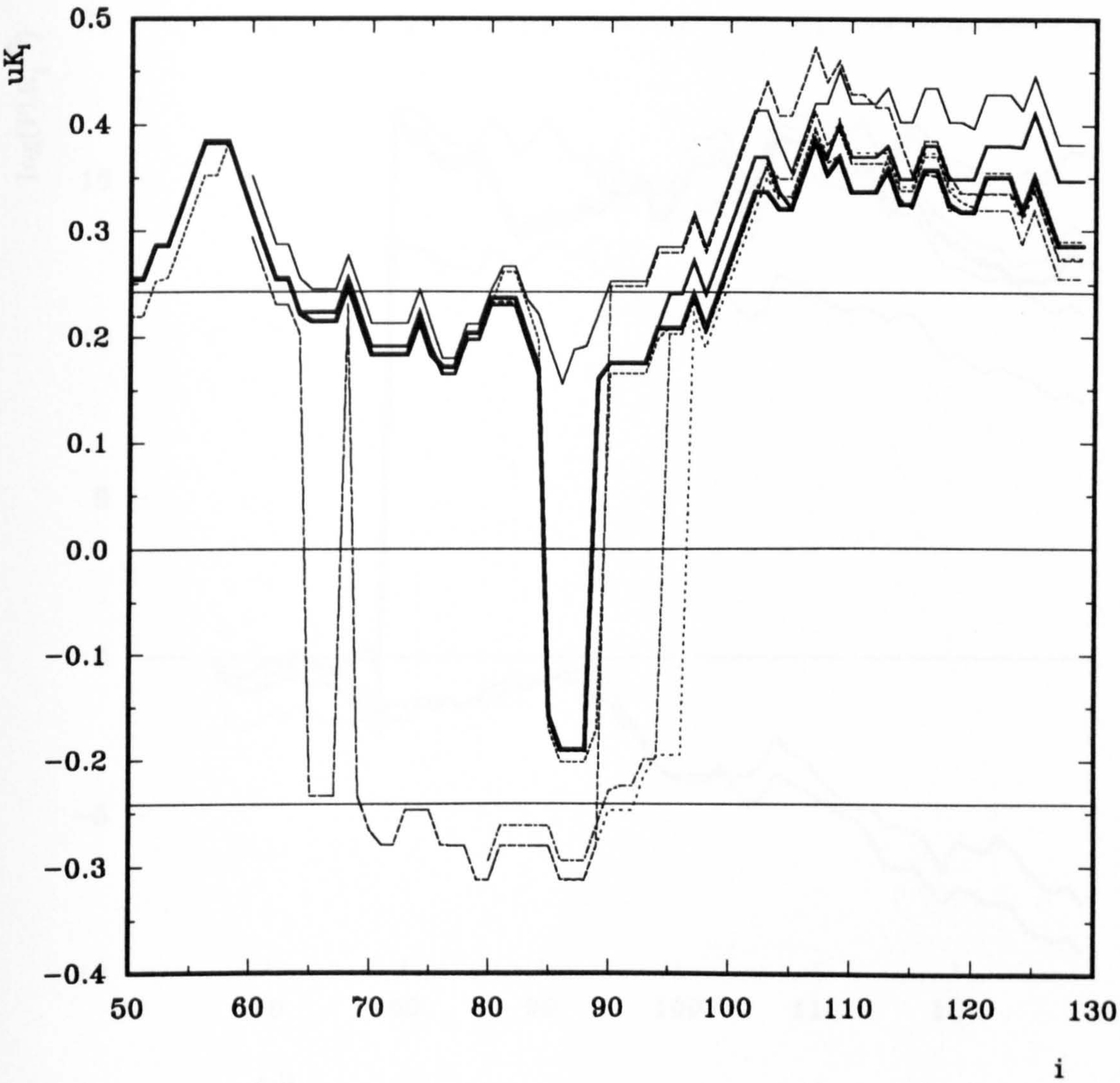


Figure B.12-19. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *TSW*.

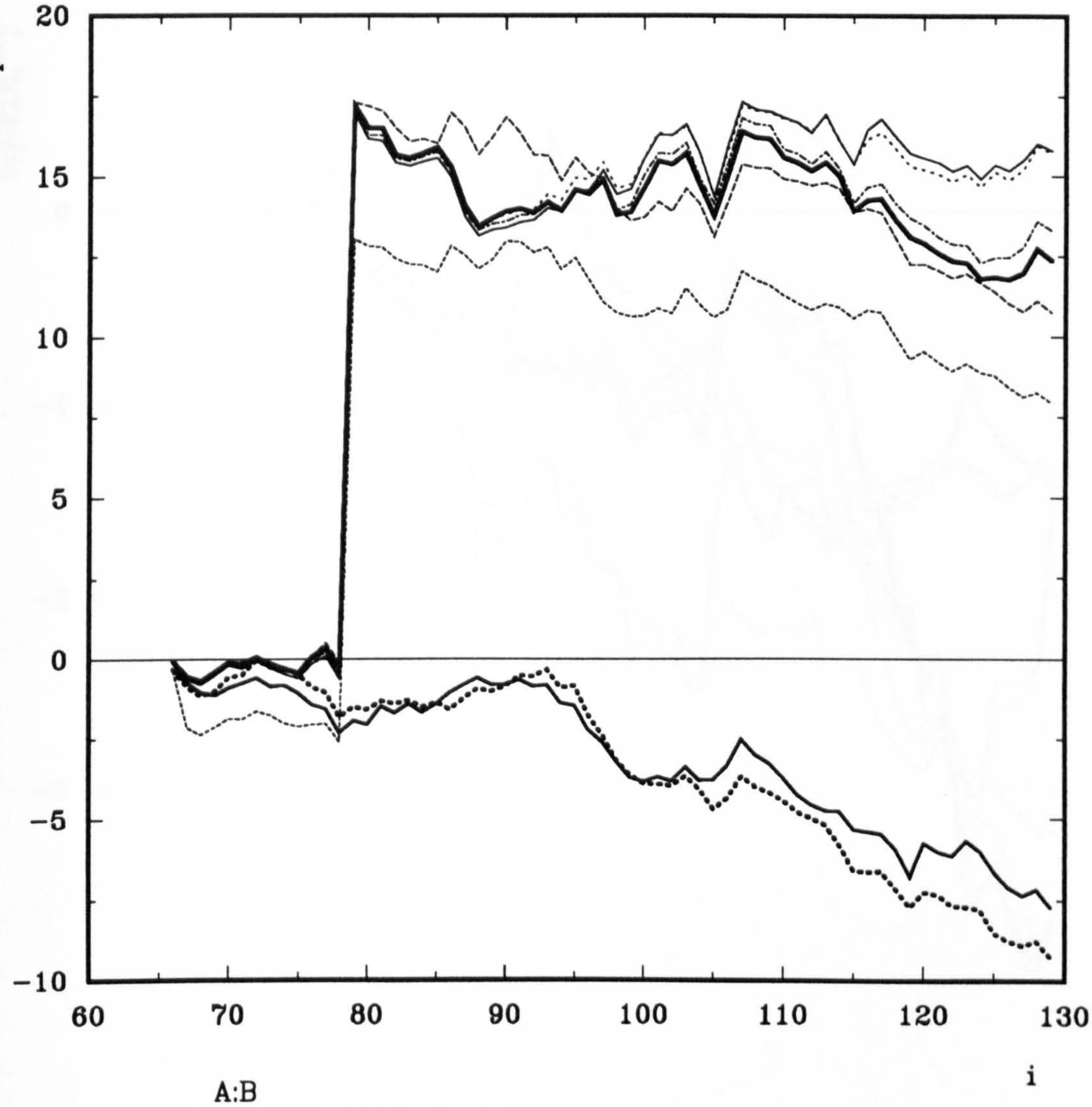


Figure B.12-20. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *TSW*.

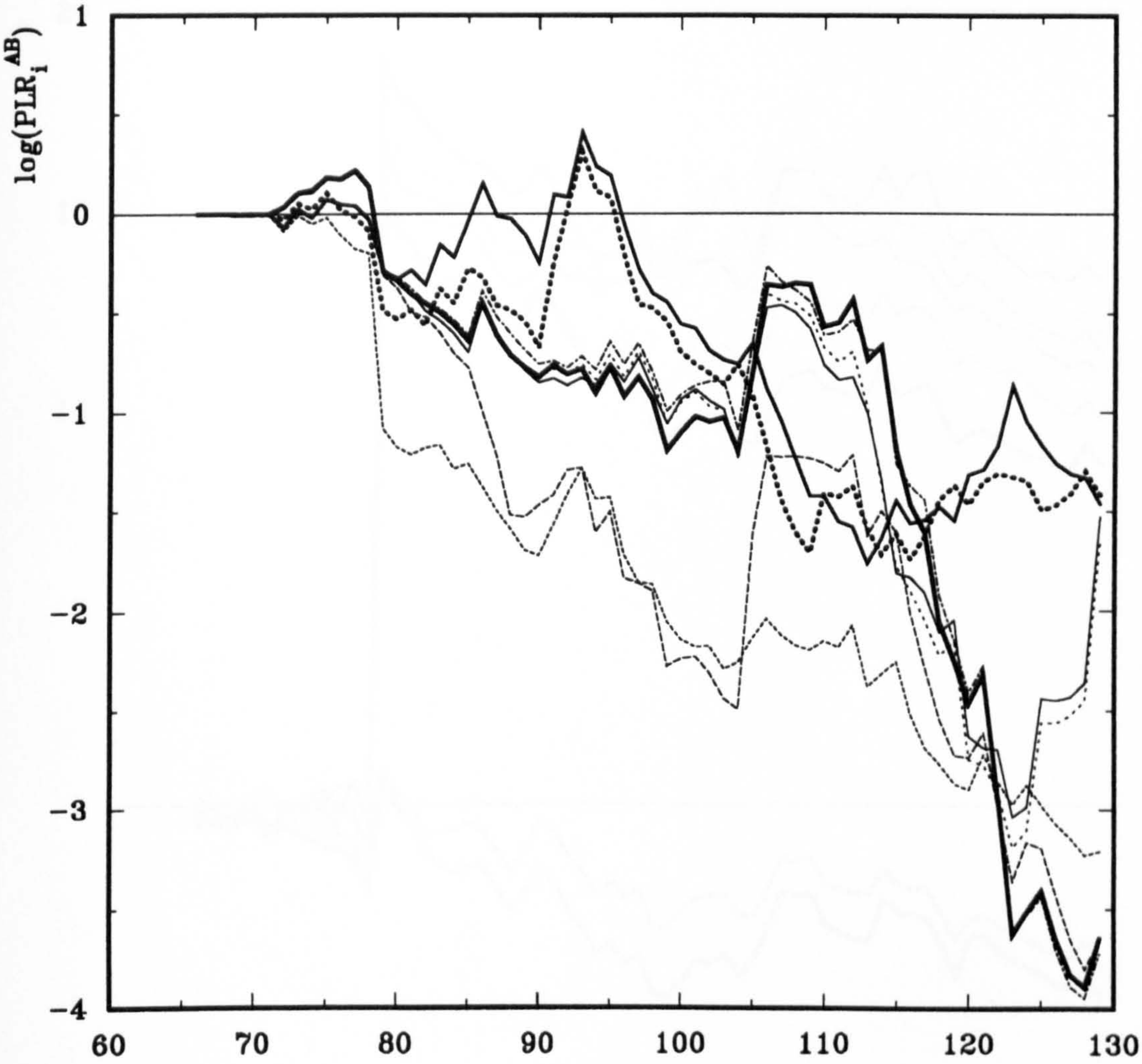


Figure B.12-21. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *TSW*.

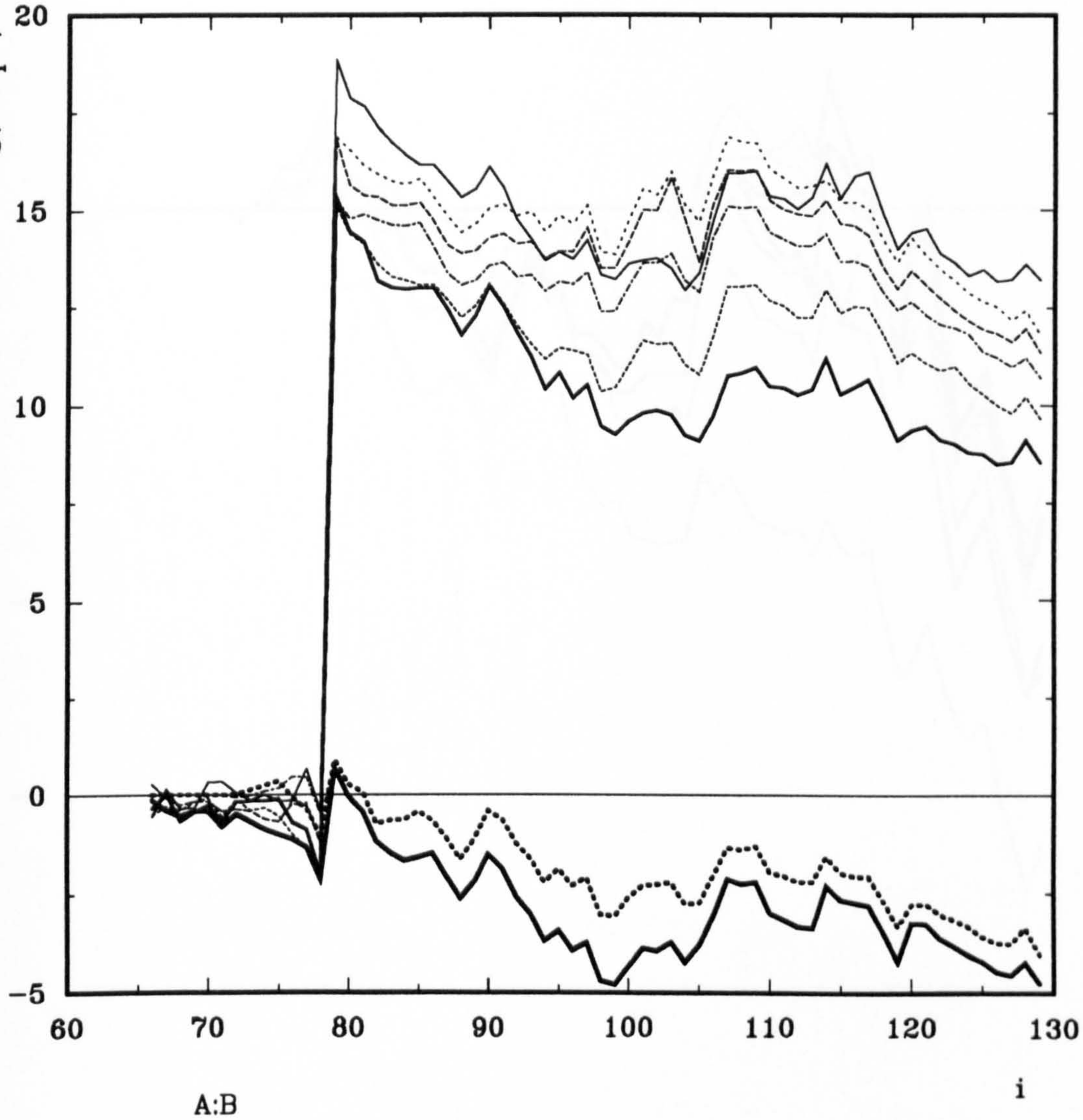


Figure B.12-22. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *TSW*.

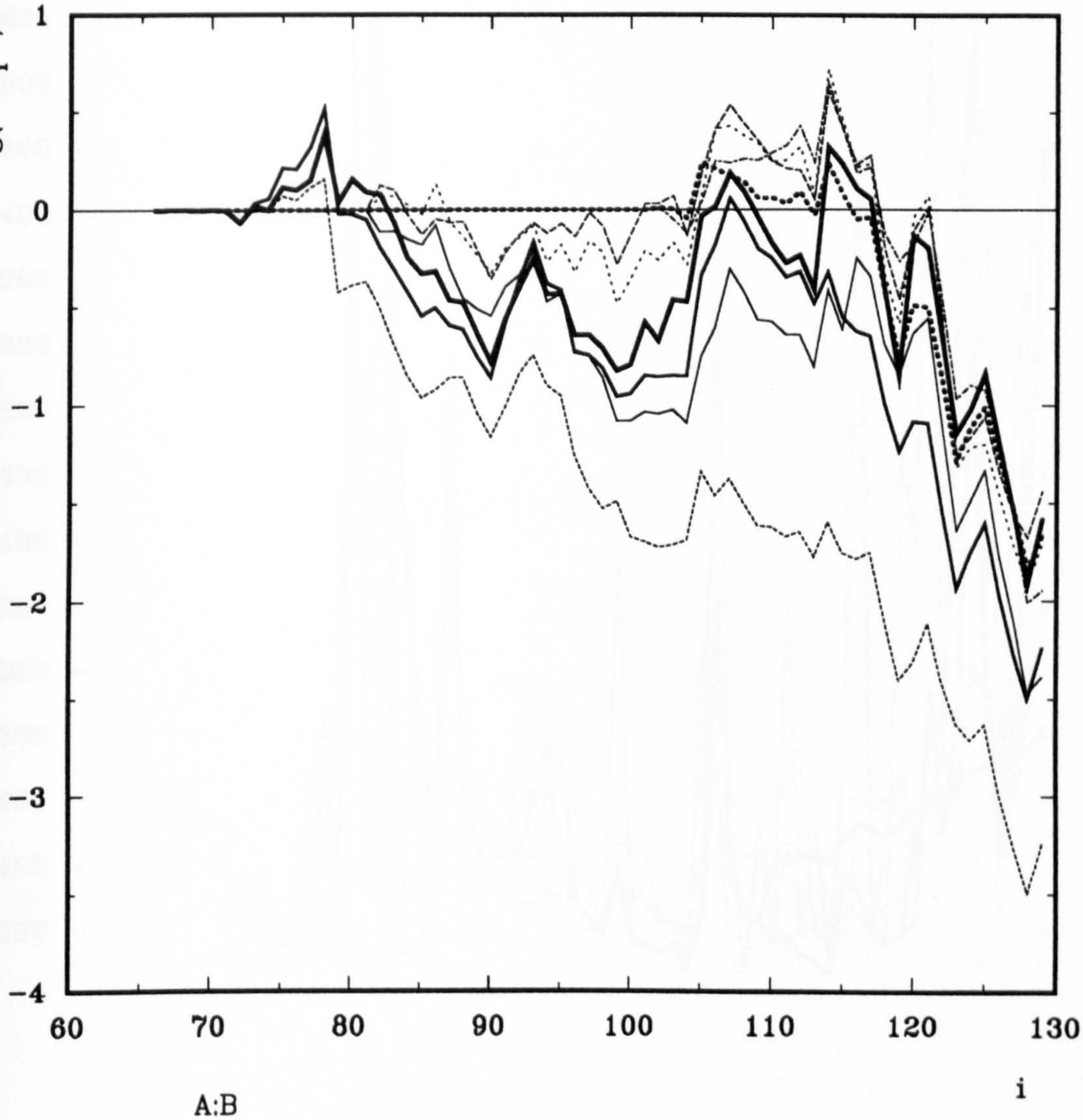


Figure B.12-23. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *TSW*.

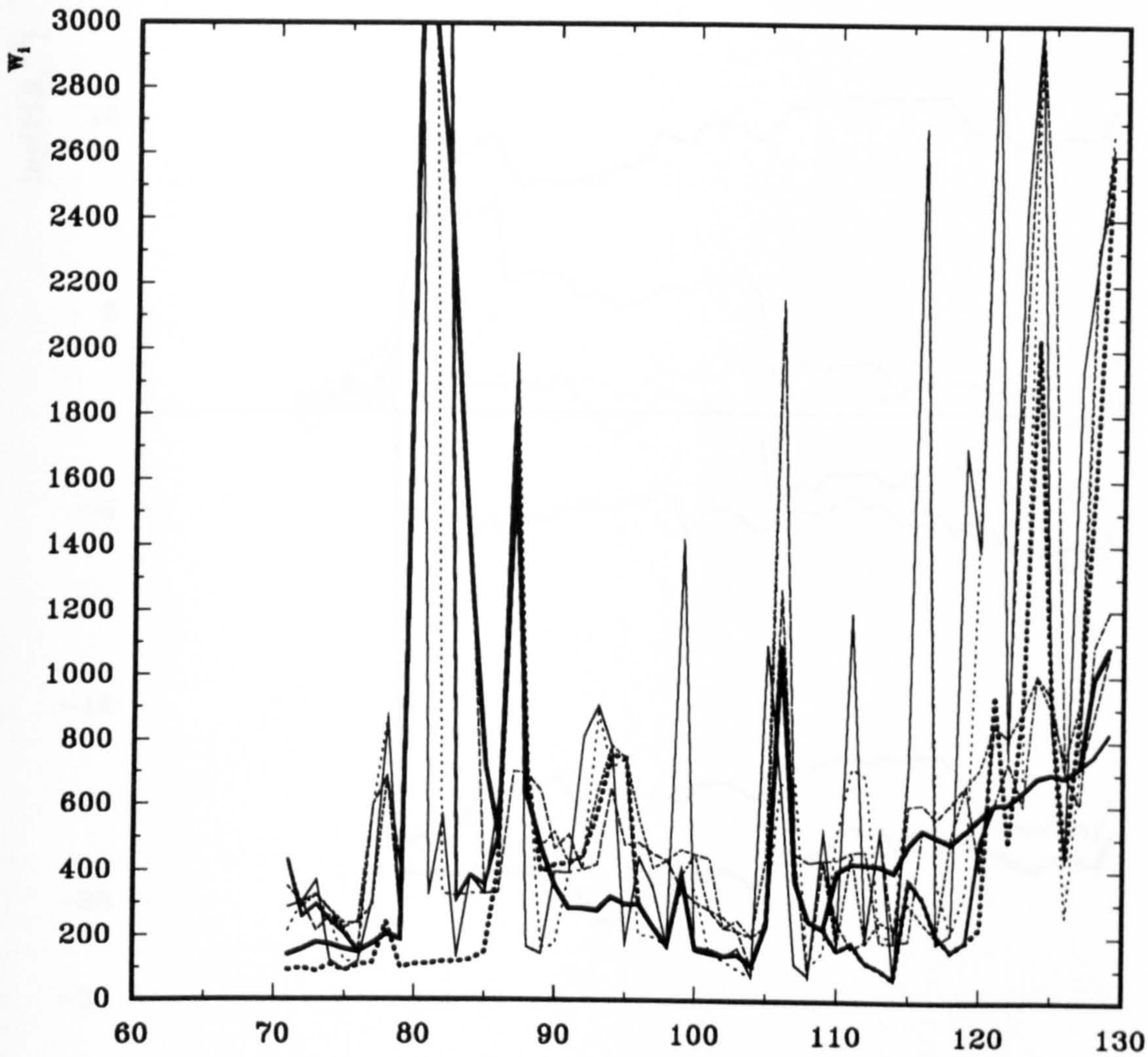


Figure B.12-24. Median predictions from the meta-predictors plotted against failure number for data set *TSW*.

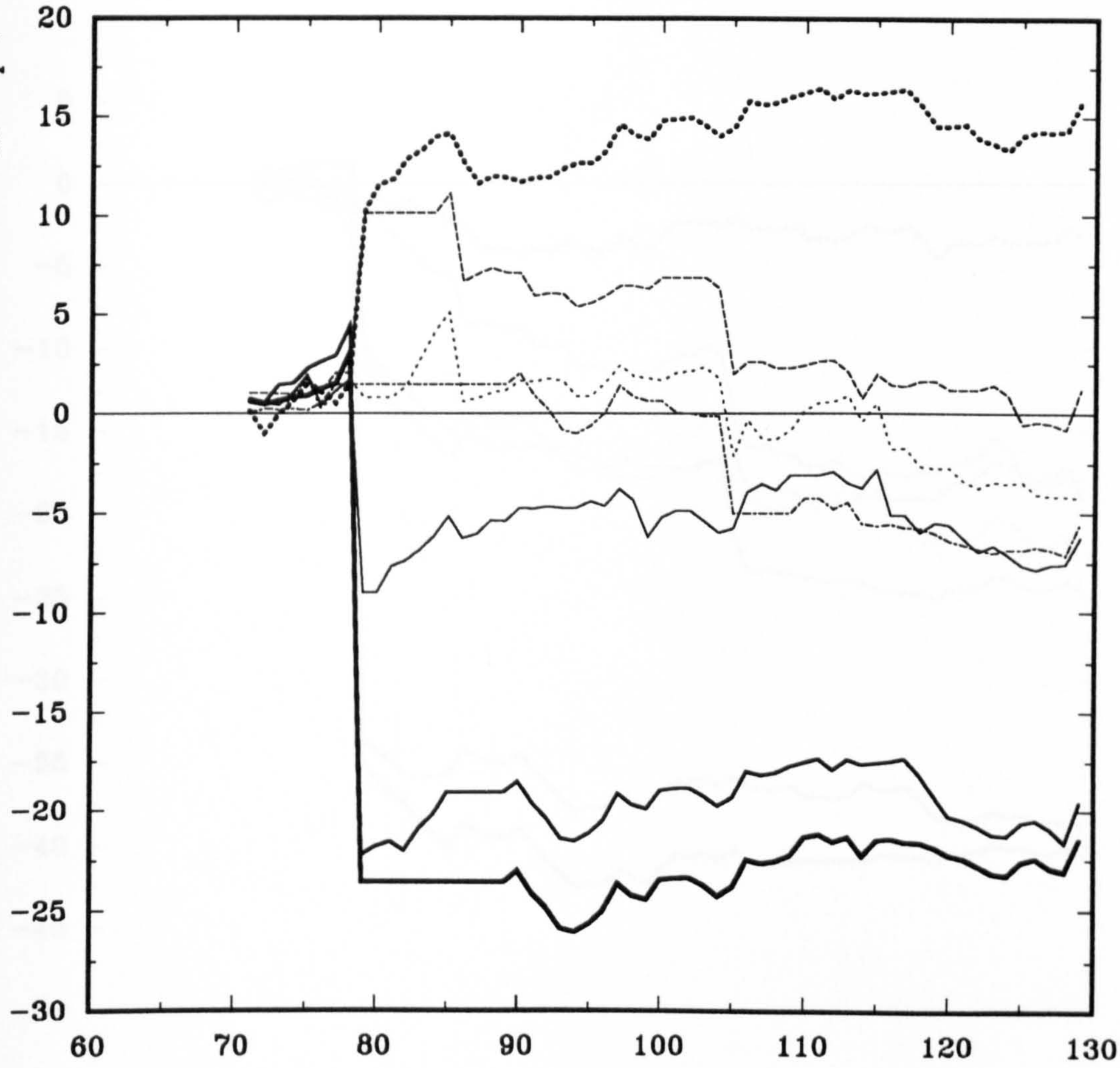


Figure B.12-25. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *TSW*.

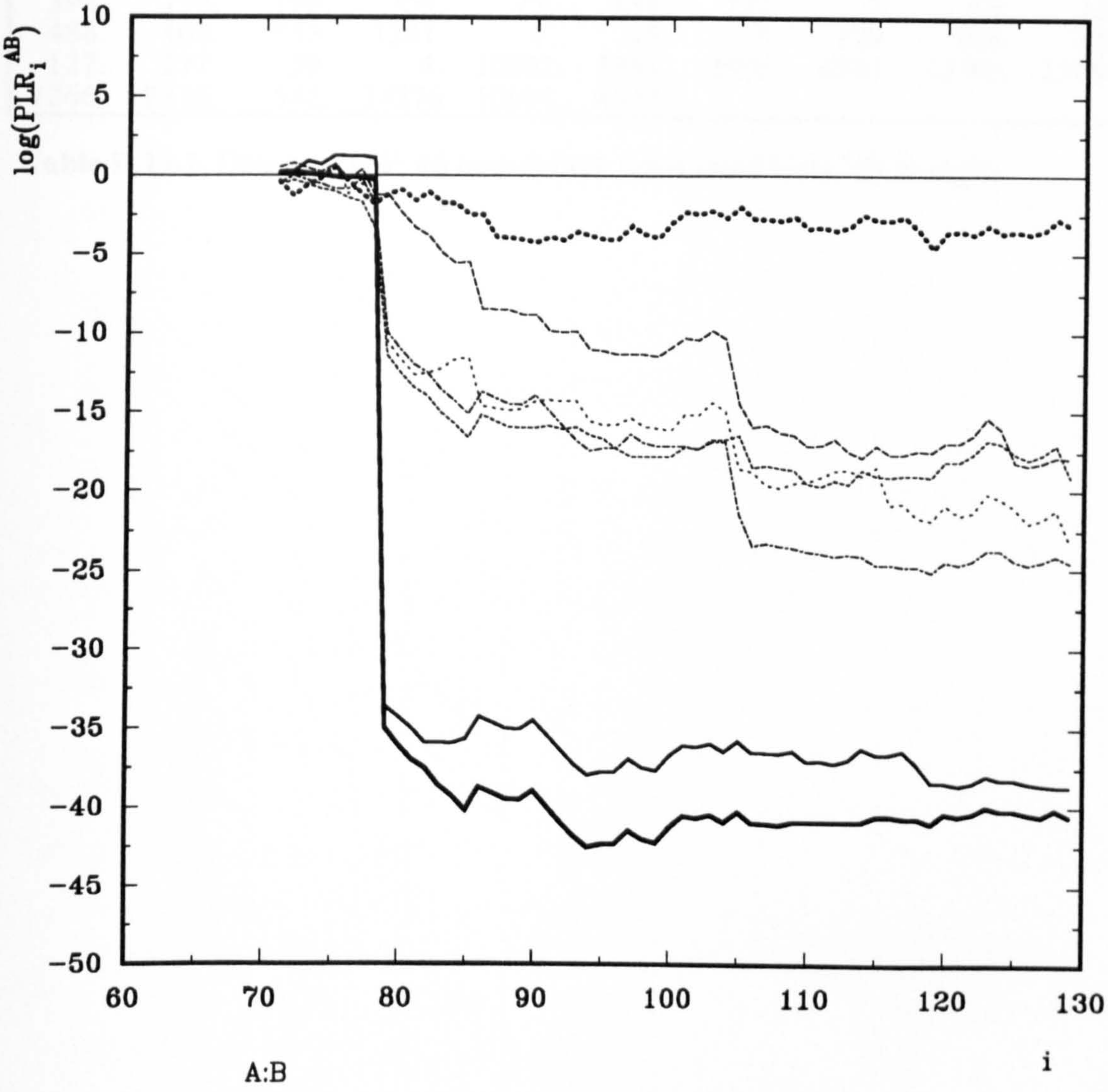


Figure B.12-26. *log(PLR)*-plots for the meta-predictors versus *LVS* for data set *TSW*.

B.13 Data Set THW

1670.	305.	944.	680.	1717.	39.	316.	23.	103.	480.
398.	176.	166.	359.	73.	188.	121.	7.	53.	16.
488.	402.	553.	1241.	1.	45.	5.	128.	189.	67.
127.	277.	59.	4.	10992.	3351.	2590.	6761.	12301.	15186.
7266.	8876.	542.	14276.	10694.	4633.				

Table B.13-1. Data set *THW*; 46 inter-failure times (read from left to right).

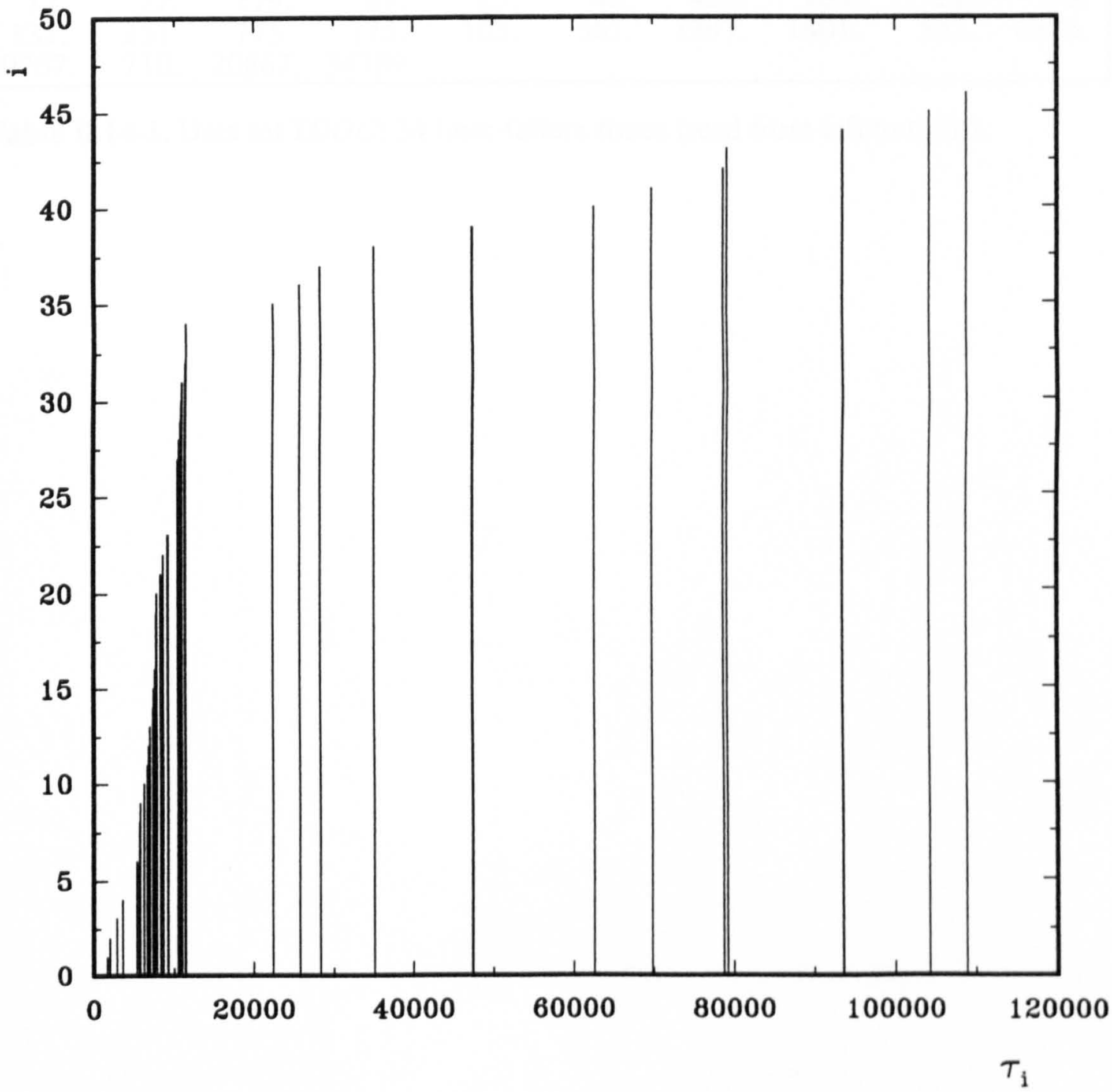


Figure B.13-2. Cumulative number of failures plotted against total elapsed time for data set *THW*.

B.14 Data Set TDOC

1339.	163.	2582.	583.	202.	337.	112.	373.	383.	44.
72.	77.	179.	87.	23.	40.	427.	165.	21.	75.
131.	251.	775.	175.	105.	561.	1397.	1601.	552.	4876.
30767.	710.	20867.	34789.						

Table B.14-1. Data set *TDOC*; 34 inter-failure times (read from left to right).

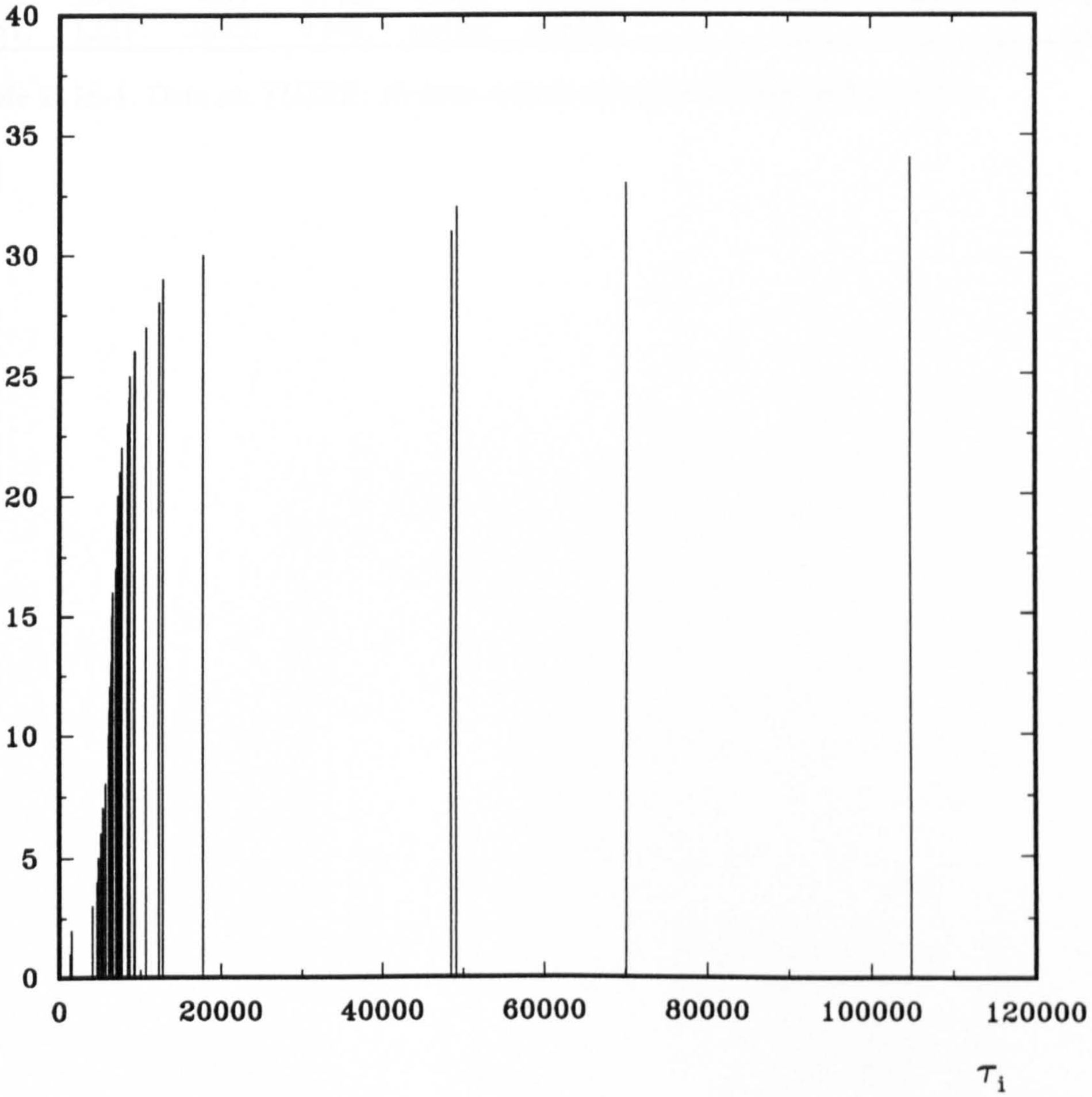


Figure B.14-2. Cumulative number of failures plotted against total elapsed time for data set *TDOC*.

B.15 Data Set TUSER

630.	1168.	98.	503.	683.	176.	1481.	1454.	1254.	1174.
30.	5982.	497.	2716.	4200.	8219.	3050.	15805.	7964.	4003.
6861.	1227.	2835.	7341.	12151.	16378.				

Table B.15-1. Data set *TUSER*; 26 inter-failure times (read from left to right).

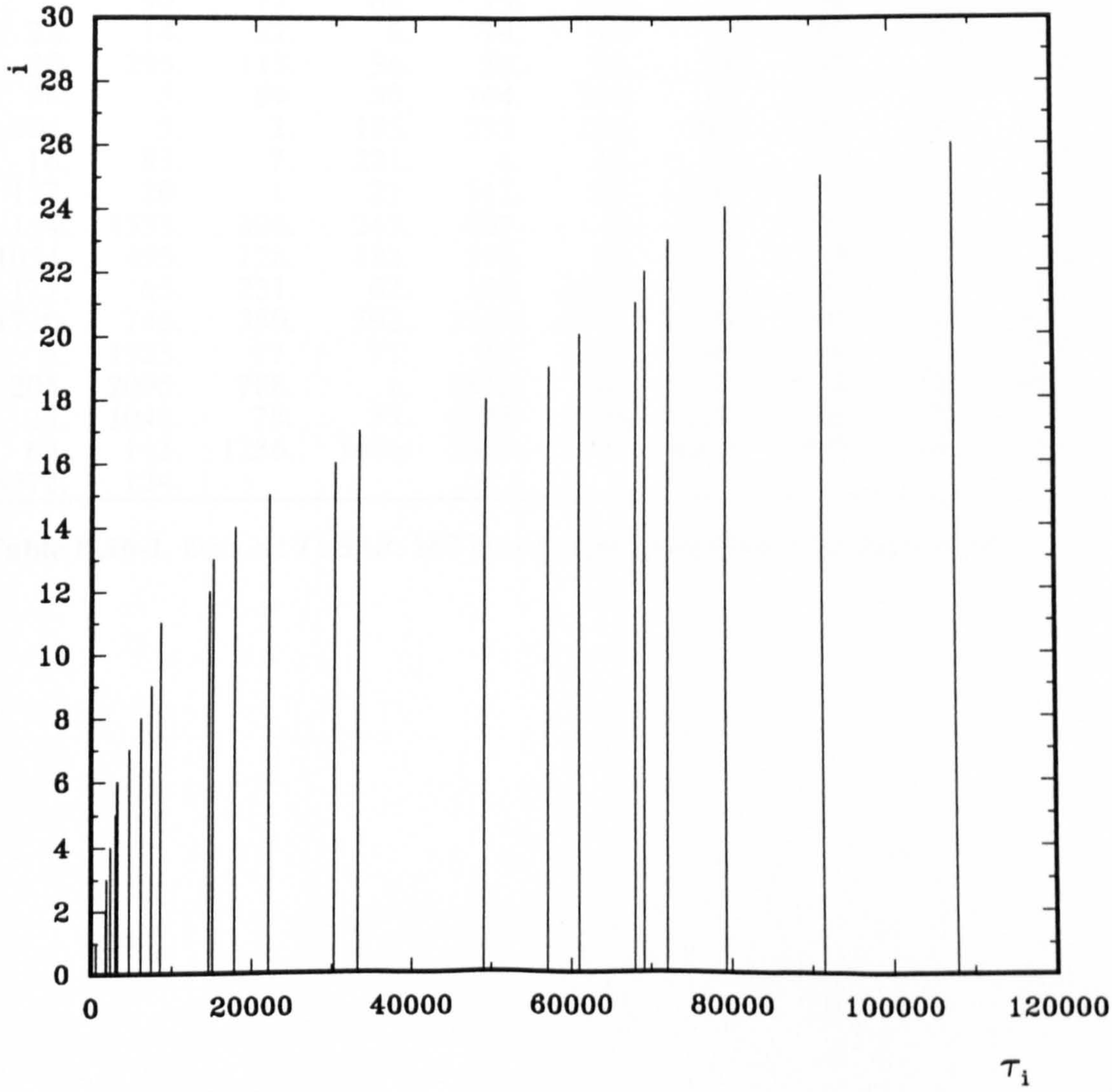


Figure B.15-2. Cumulative number of failures plotted against total elapsed time for data set *TUSER*.

B.16 Data Set TUSAB

60.	30.	607.	40.	28.	53.	4.	16.	94.	15.
5.	90.	77.	68.	15.	160.	1.	104.	16.	9.
22.	14.	82.	6.	79.	43.	12.	87.	138.	108.
30.	295.	113.	36.	50.	81.	89.	157.	14.	166.
36.	5.	69.	50.	164.	392.	16.	154.	176.	247.
304.	5.	2.	135.	233.	156.	295.	152.	341.	103.
16.	83.	7.	221.	4.	38.	11.	17.	107.	59.
127.	20.	1.	21.	112.	23.	193.	1104.	103.	318.
114.	1553.	306.	245.	107.	2.	327.	696.	5.	63.
1054.	495.	128.	482.	116.	35.	310.	110.	98.	60.
177.	65.	231.	62.	158.	1622.	386.	70.	151.	809.
1710.	745.	350.	592.	3569.	1967.	772.	3337.	620.	3044.
6.	1923.	17.	71.	34.	1176.	1040.	38.	78.	1798.
205.	2095.	788.	1.	3812.	726.	1452.	5173.	1957.	3097.
25.	1048.	78.	33.	6725.	1366.	2859.	556.	5028.	537.
63.	113.	1236.	1406.	1580.	3546.	8575.	1893.	198.	3326.
6372.	124.								

Table B.16-1. Data set *TUSAB*; 162 inter-failure times (read from left to right).

	RAW		*S*		*S20*		*S30*		*S40*		*S50*	
	y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
JM	F	F	F	F	E	A	F	B	F	D	F	F
GO	F	F	F	F	D	A	E	B	F	C	F	D
MO	A	A	C	A	C	A	D	A	C	A	D	A
DU	A	F	C	B	C	A	D	A	C	A	D	A
LM	D	F	C	D	C	A	B	A	B	A	A	A
LNHPP	D	D	C	D	B	A	B	A	B	A	A	A
LV	C	F	A	C	A	A	B	A	A	A	A	A
KL	A	F	A	A	A	A	B	A	A	A	A	A
CM1	A	F	A	A	A	A	A	A	A	A	A	A
CM2	A	B	A	A	B	A	B	A	A	A	A	A
CM3	A	E	A	A	C	A	B	A	A	A	A	A
OTY20	A	D	A	A	A	A	A	A	A	A	A	A
OTY50	A	B	A	A	D	A	C	A	B	A	C	A
OTL	A	F	A	A	A	A	B	A	A	A	A	A
OTL20	A	F	A	A	A	A	A	A	A	A	A	A
OTL50	A	F	A	A	A	A	B	A	B	A	B	A

Table B.16-2.1. *u*- and *y*-plot significance levels for data set *TUSAB* for predictions of $T_{66}, T_{67}, \ldots$.

M1		*M2*		*M5*		*M10*		*M20*		*M30*		*M40*		*M50*	
y	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***	***y***	***u***
E	B	B	C	C	A	B	A	B	A	C	A	E	A	F	A

Table B.16-2.2. *u*- and *y*-plot significance levels for data set *TUSAB* for predictions of $T_{71}, T_{72}, \ldots$.

A: insignificant at 20% B: 10-20% C: 5-10% D: 2-5% E: 1-2% F: significant at 1%

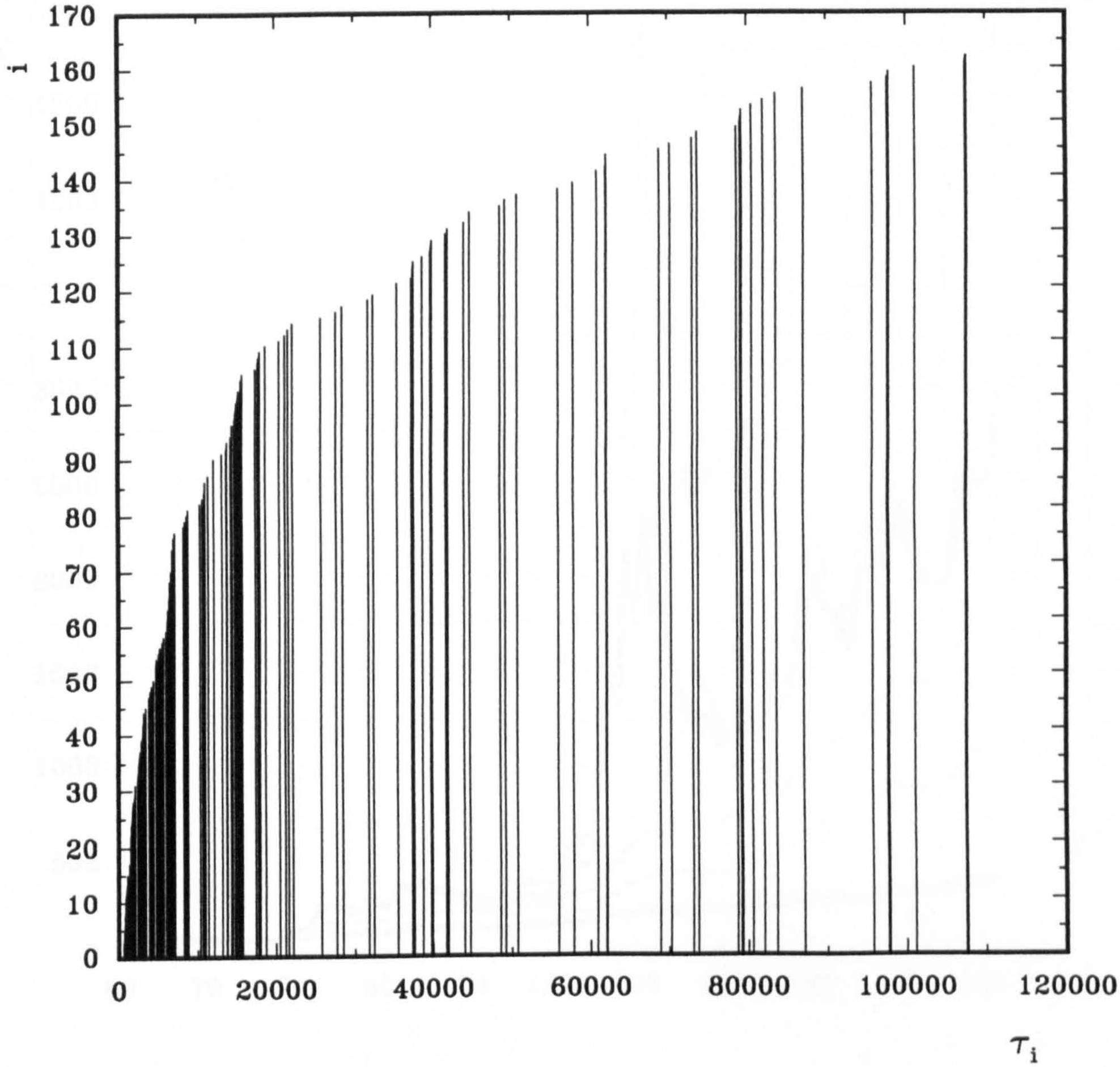


Figure B.16-3. Cumulative number of failures plotted against total elapsed time for data set *TUSAB*.

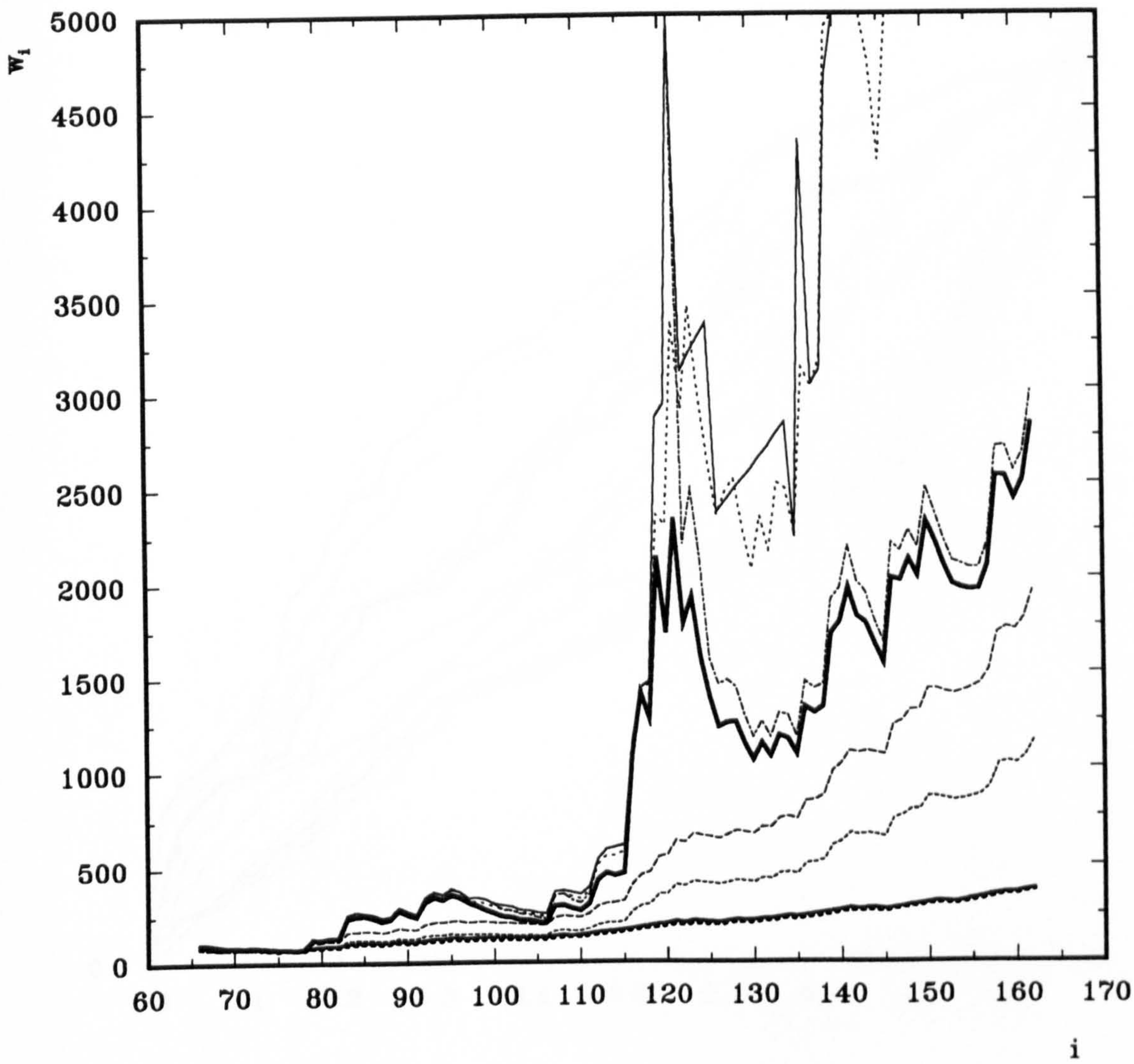
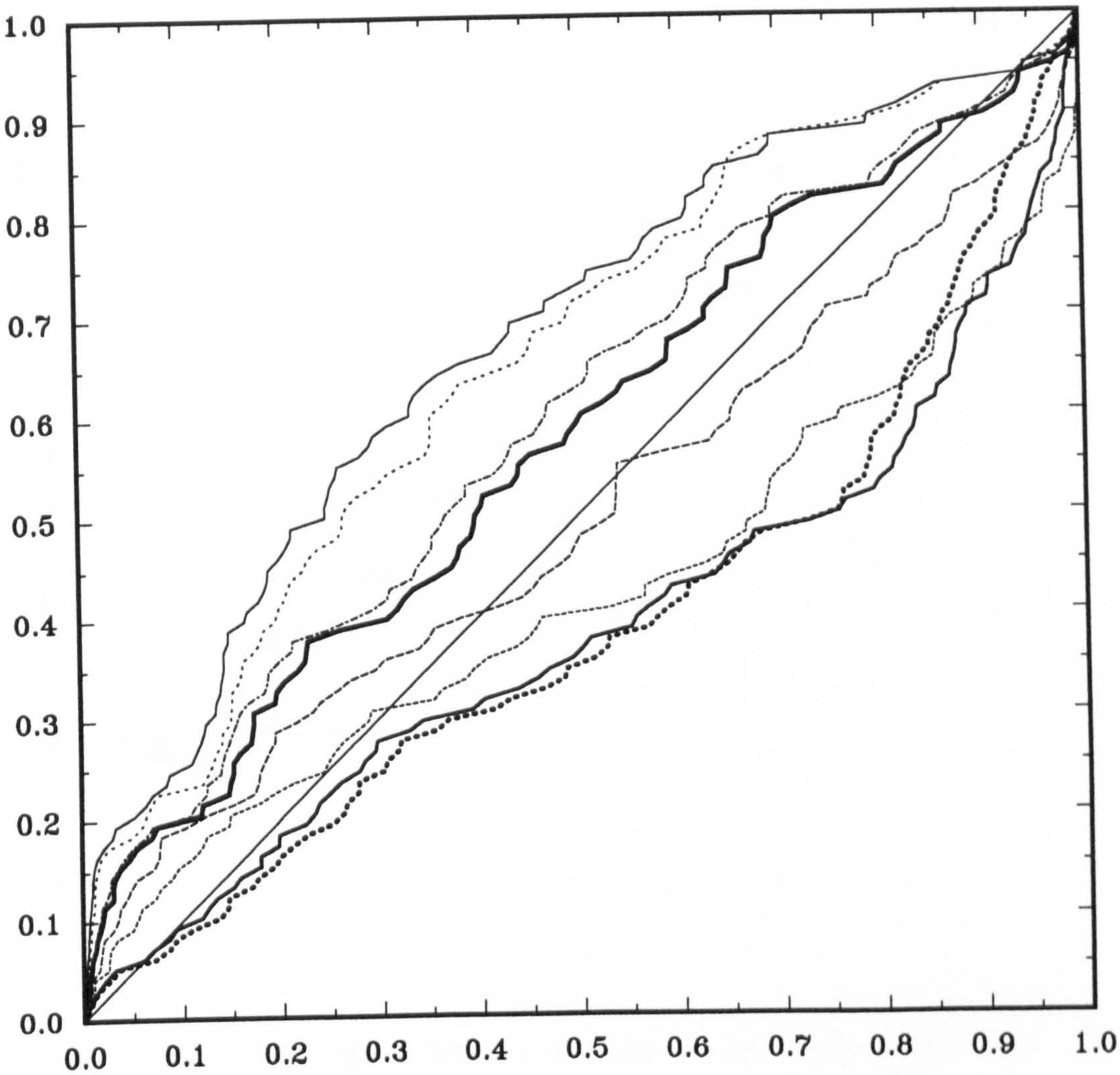


Figure B.16-4. Median predictions from the raw parametric predictors plotted against failure number for data set *TUSAB*.



JM
GO
MO
DU
LM
LNHPP
LV
KL

Figure B.16-5. *u*-plots for the raw parametric predictors for data set *TUSAB*.

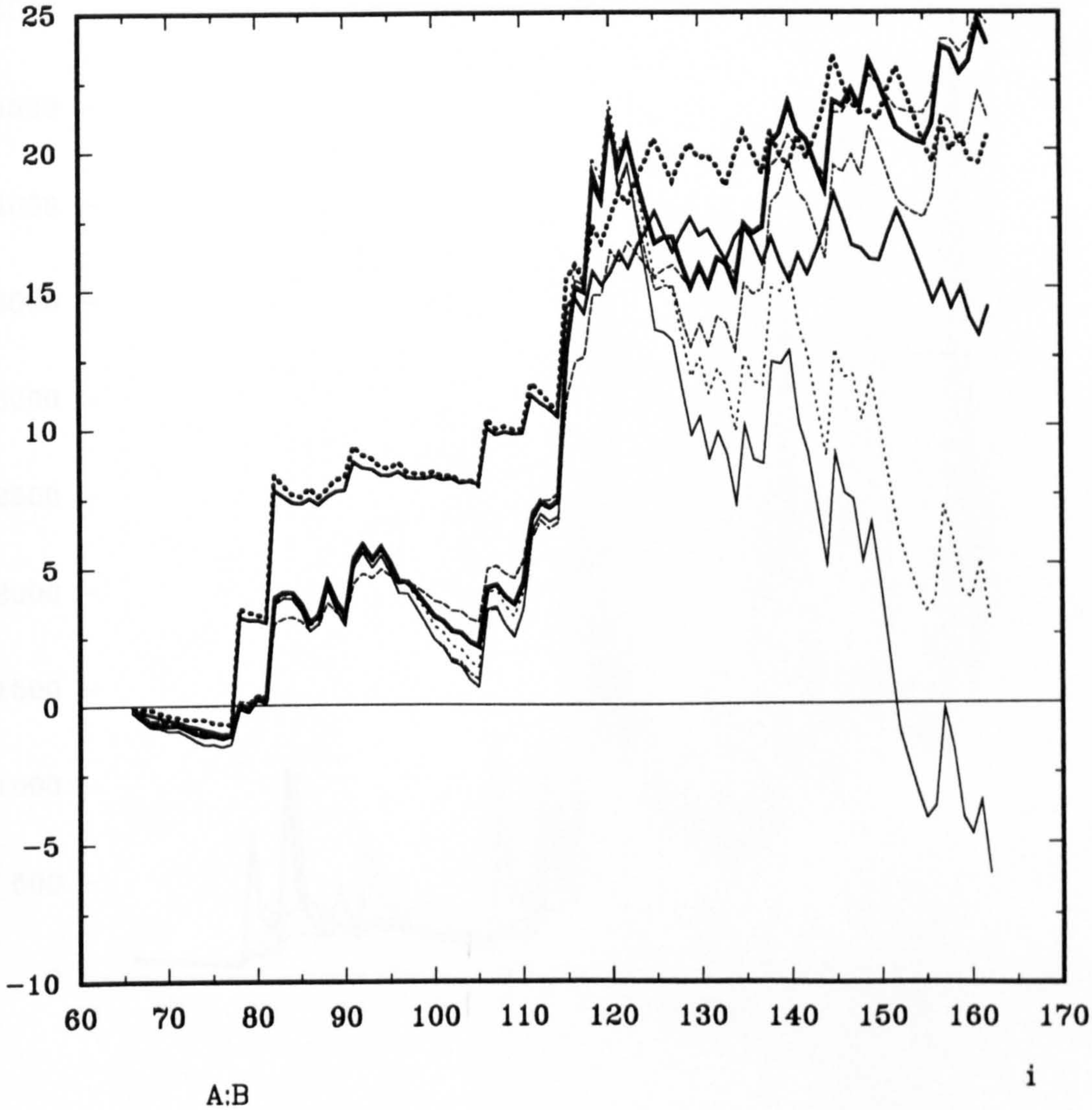


Figure B.16-6. *log(PLR)*-plots for the raw parametric predictors versus *DU* for data set *TUSAB*.

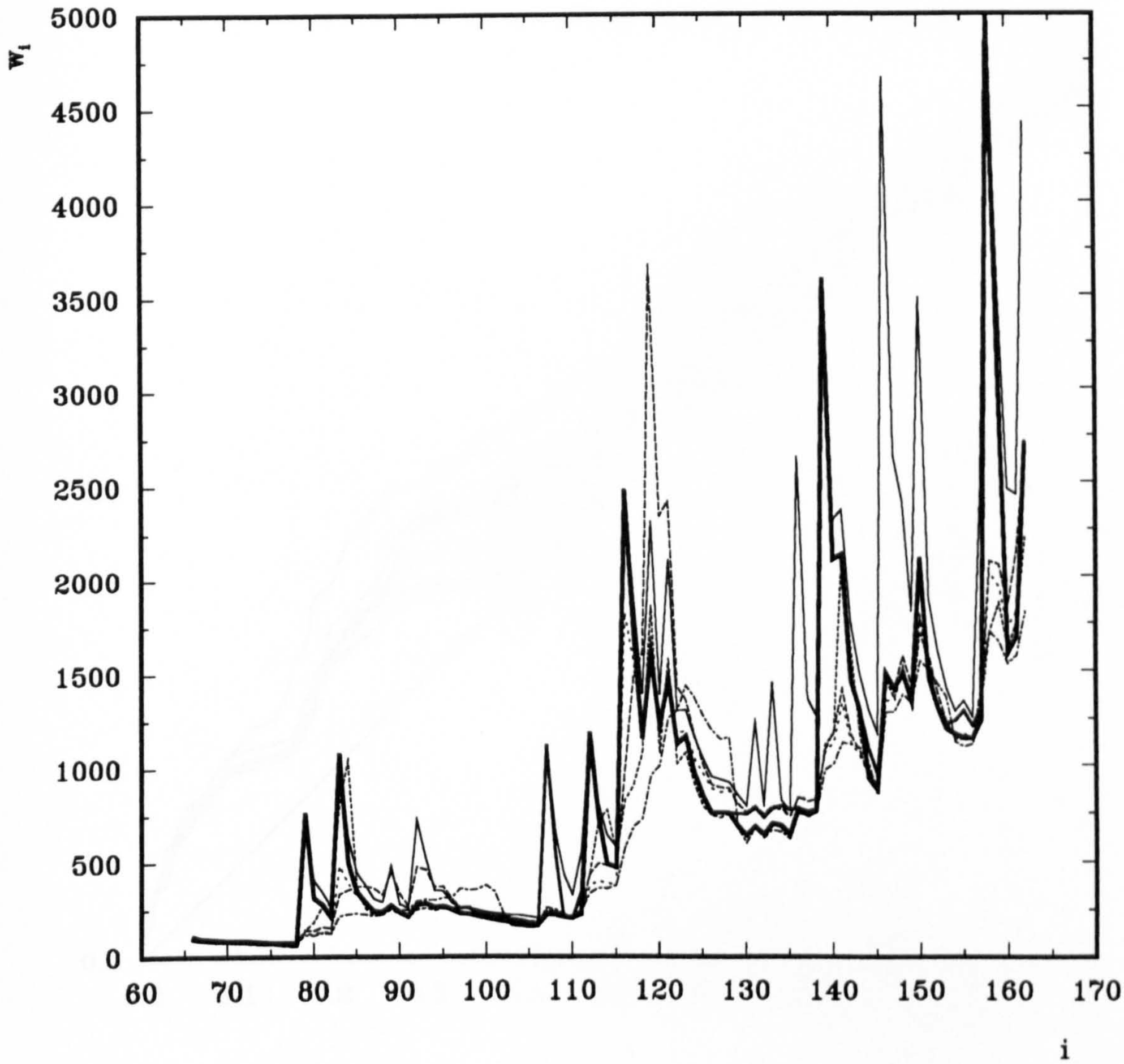


Figure B.16-7. Median predictions from the raw non-parametric predictors plotted against failure number for data set *TUSAB*.

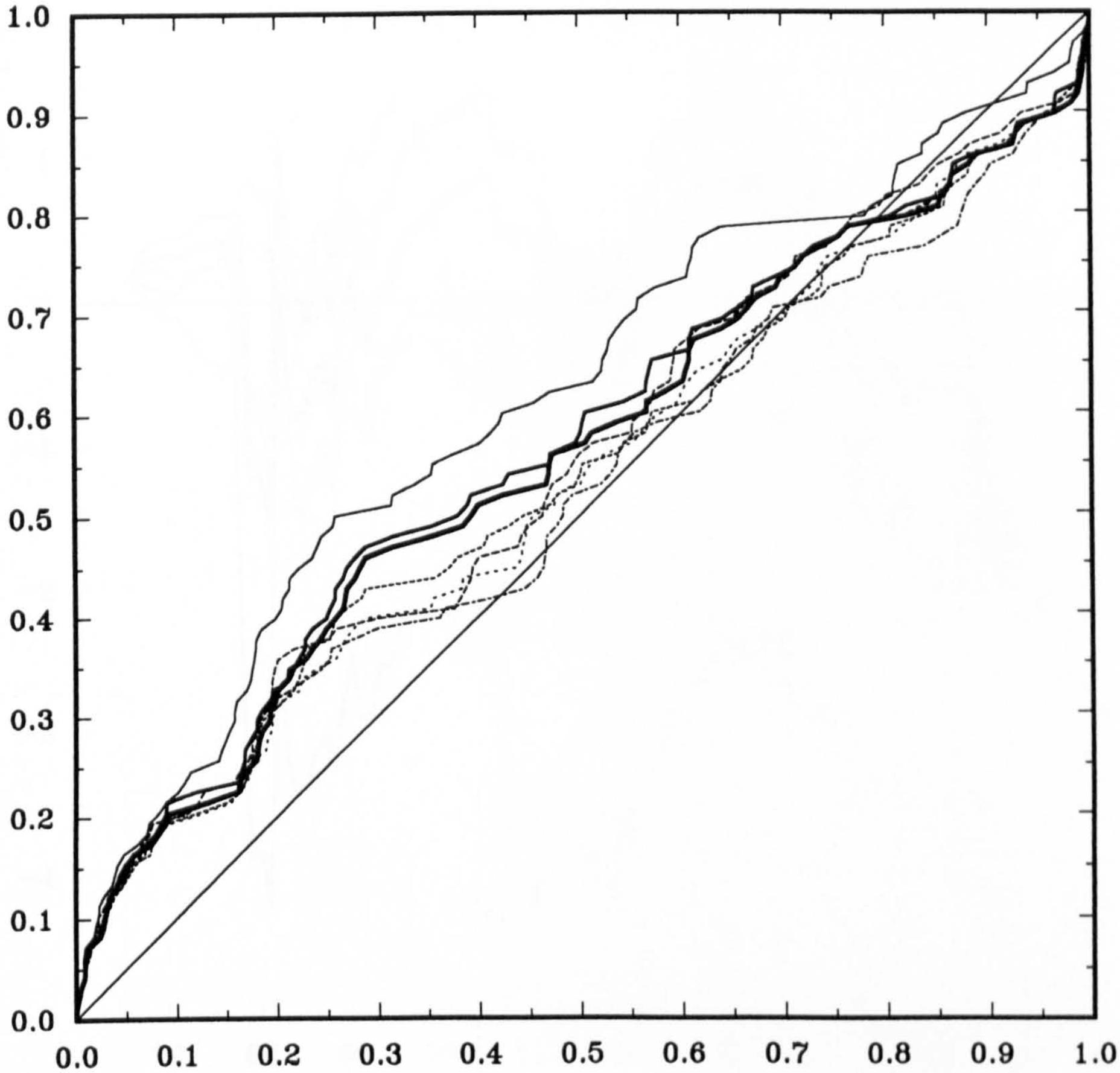


Figure B.16-8. *u*-plots for the raw non-parametric predictors for data set *TUSAB*.

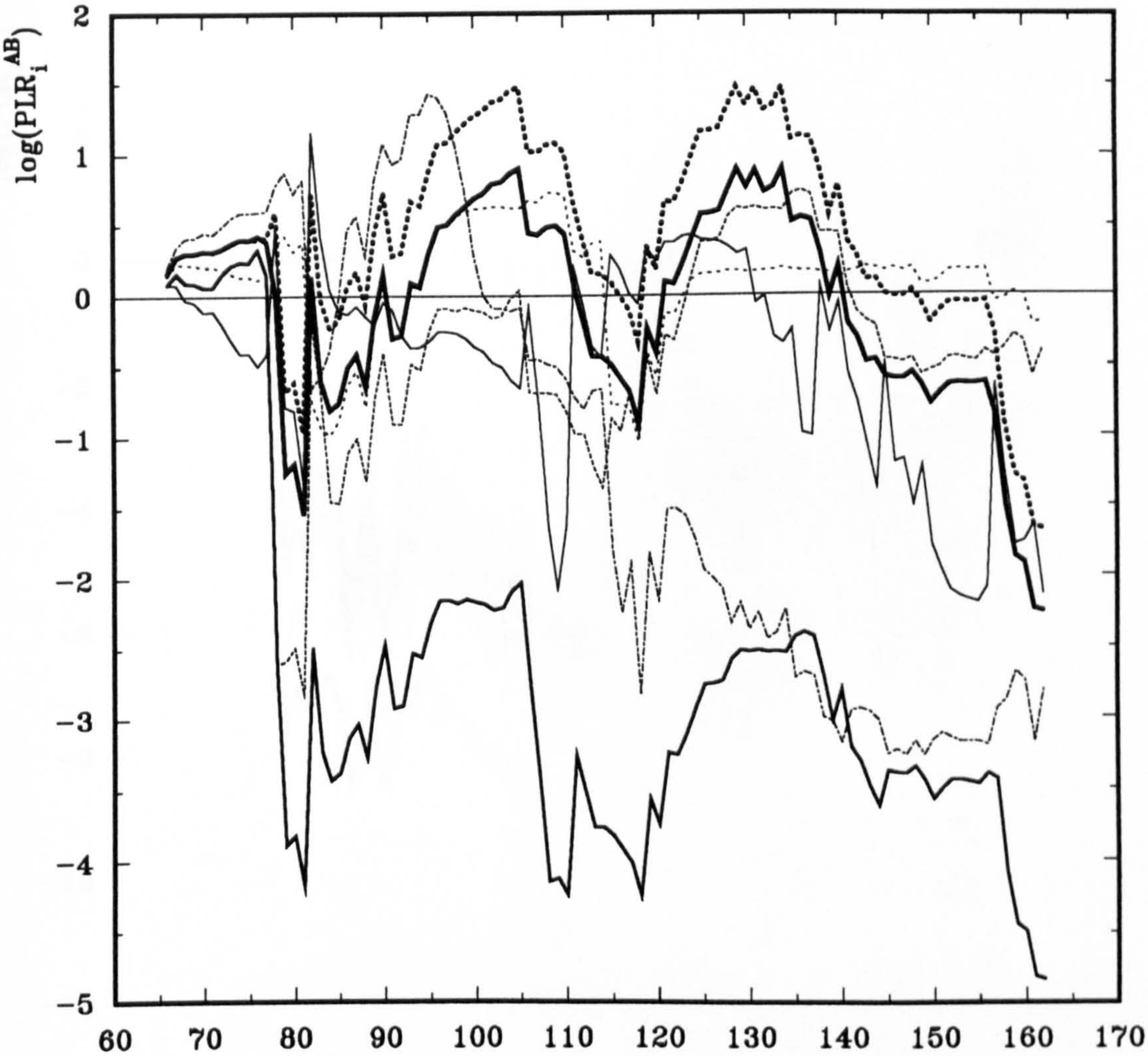


Figure B.16-9. *log(PLR)*-plots for the raw non-parametric predictors versus *CM3* for data set *TUSAB*.

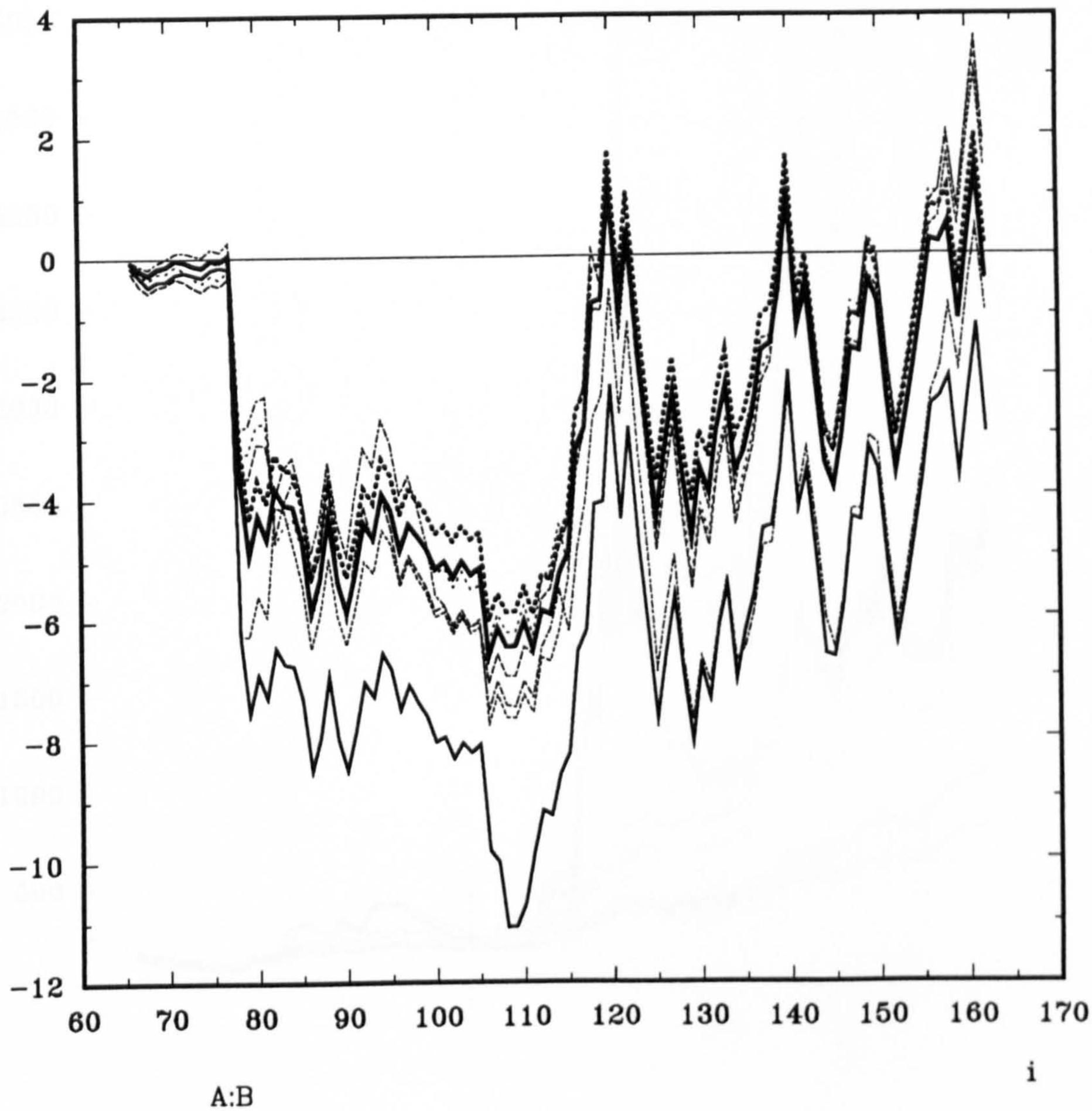


Figure B.16-10. *log(PLR)*-plots for the raw non-parametric predictors versus *KL* for data set *TUSAB*.

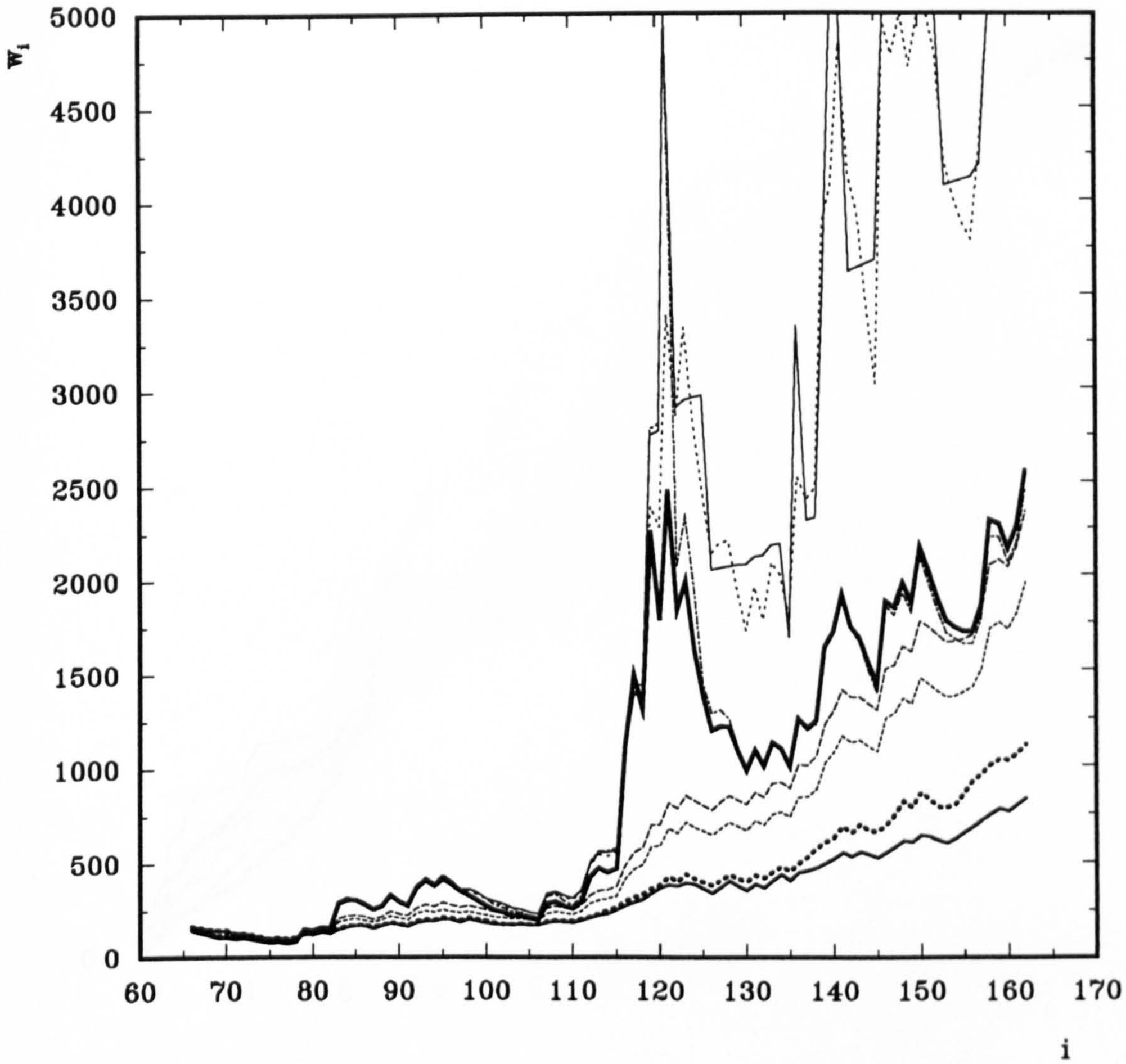


Figure B.16-11. Median predictions from the recalibrated (no window) parametric predictors plotted against failure number for data set *TUSAB*.

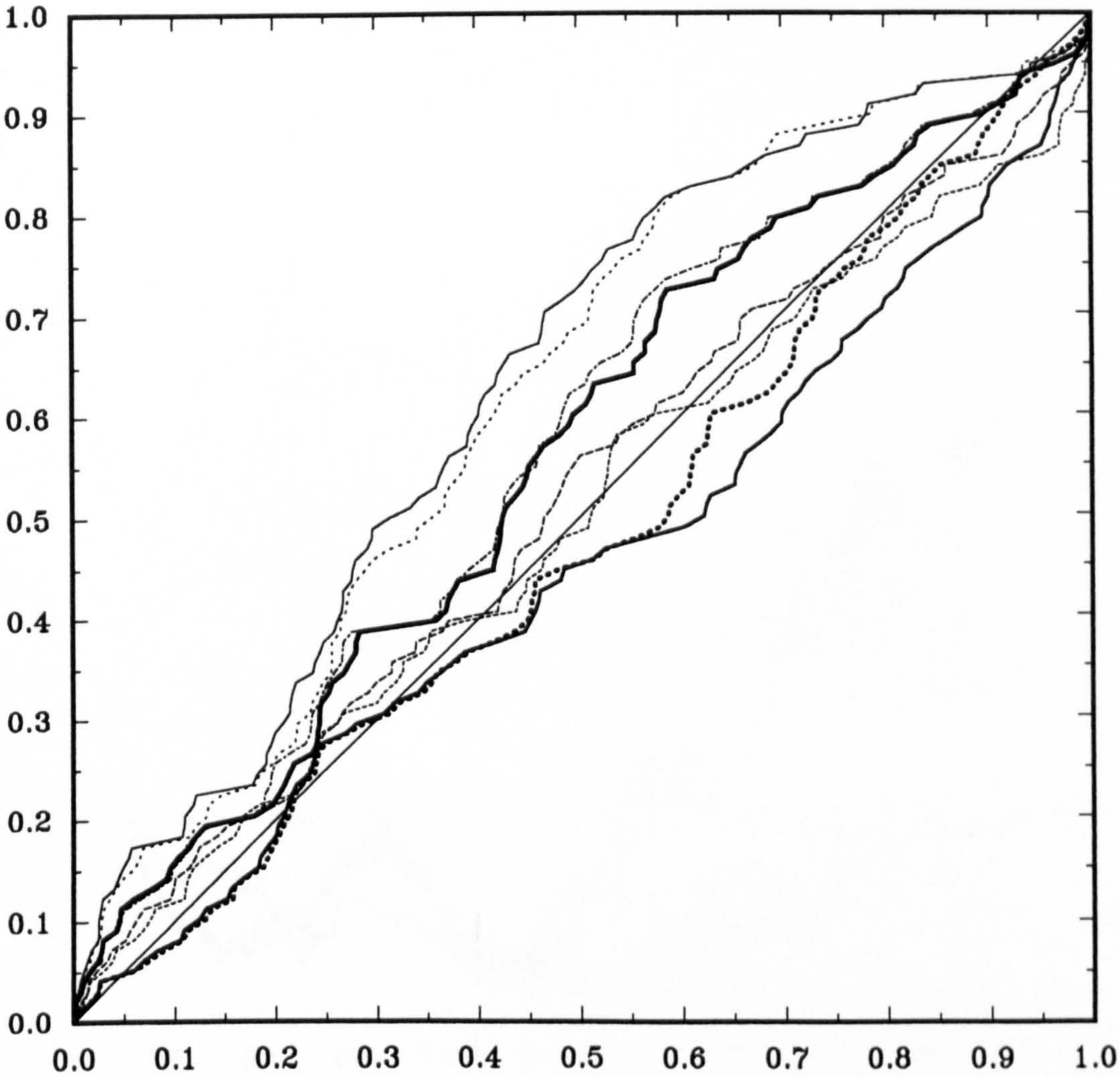


Figure B.16-12. *u*-plots for the recalibrated (no window) parametric predictors for data set *TUSAB*.

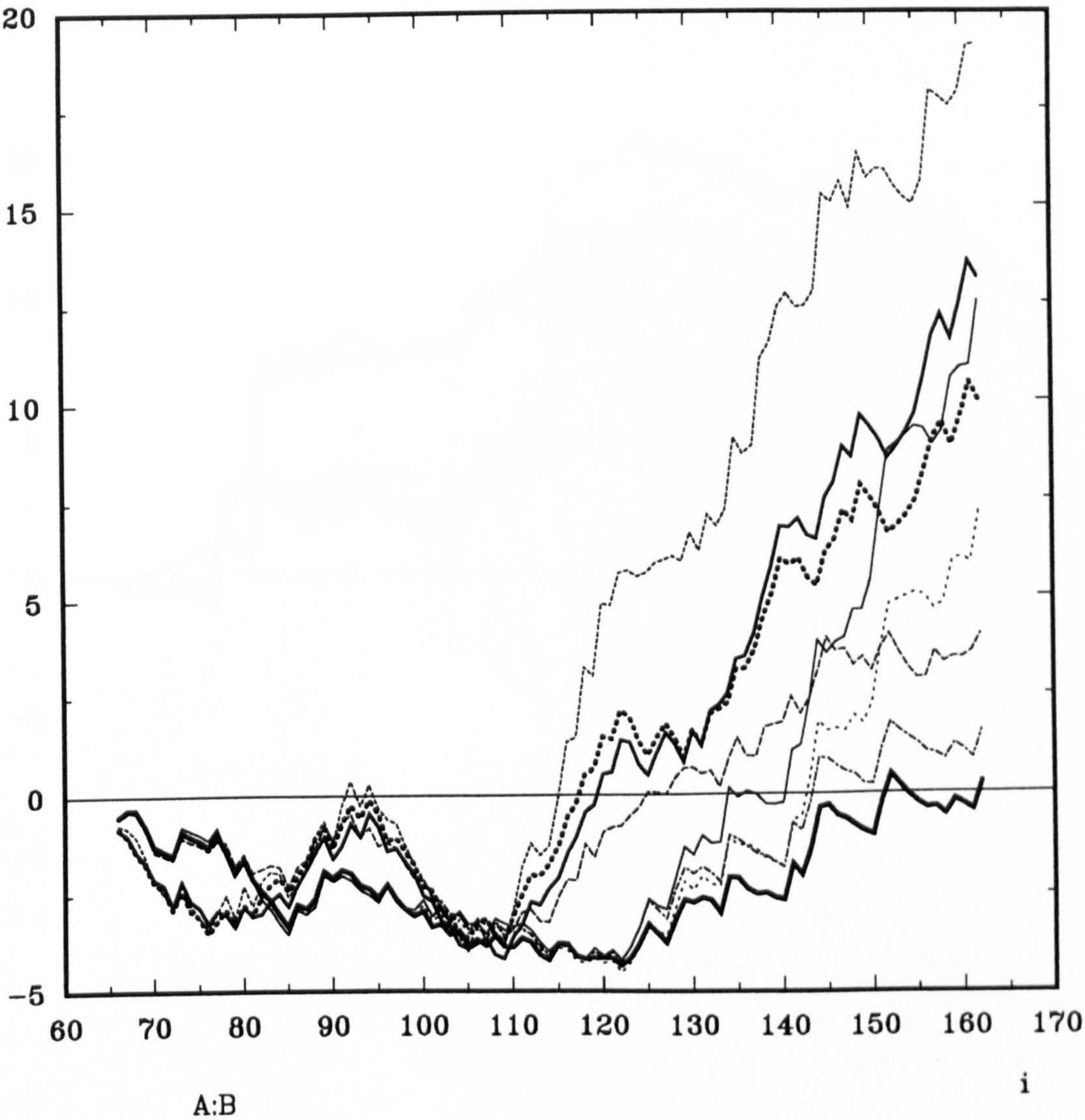


Figure B.16-13. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus the raw parametric predictors for data set *TUSAB*.

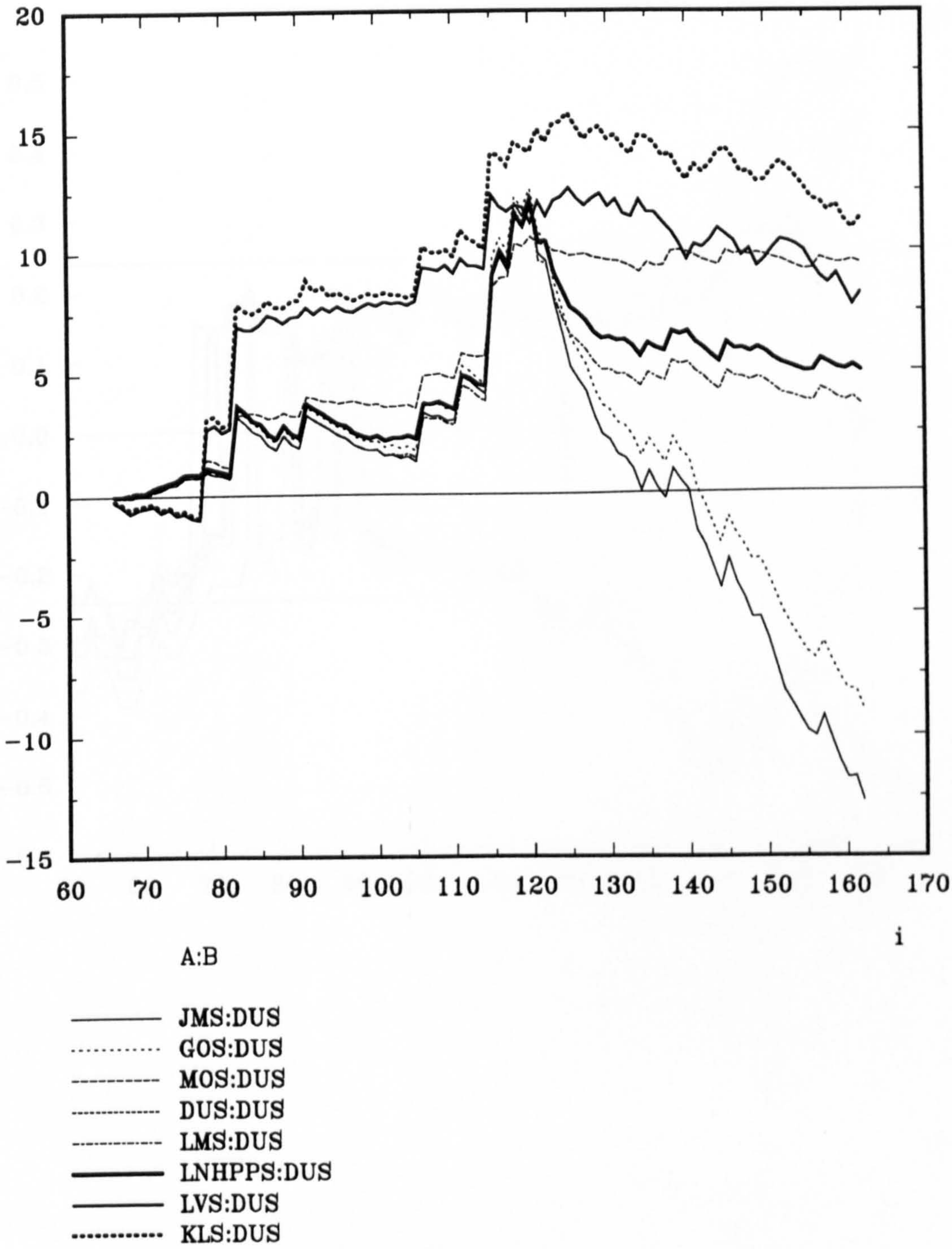


Figure B.16-14. *log(PLR)*-plots for the recalibrated (no window) parametric predictors versus *DUS* for data set *TUSAB*.

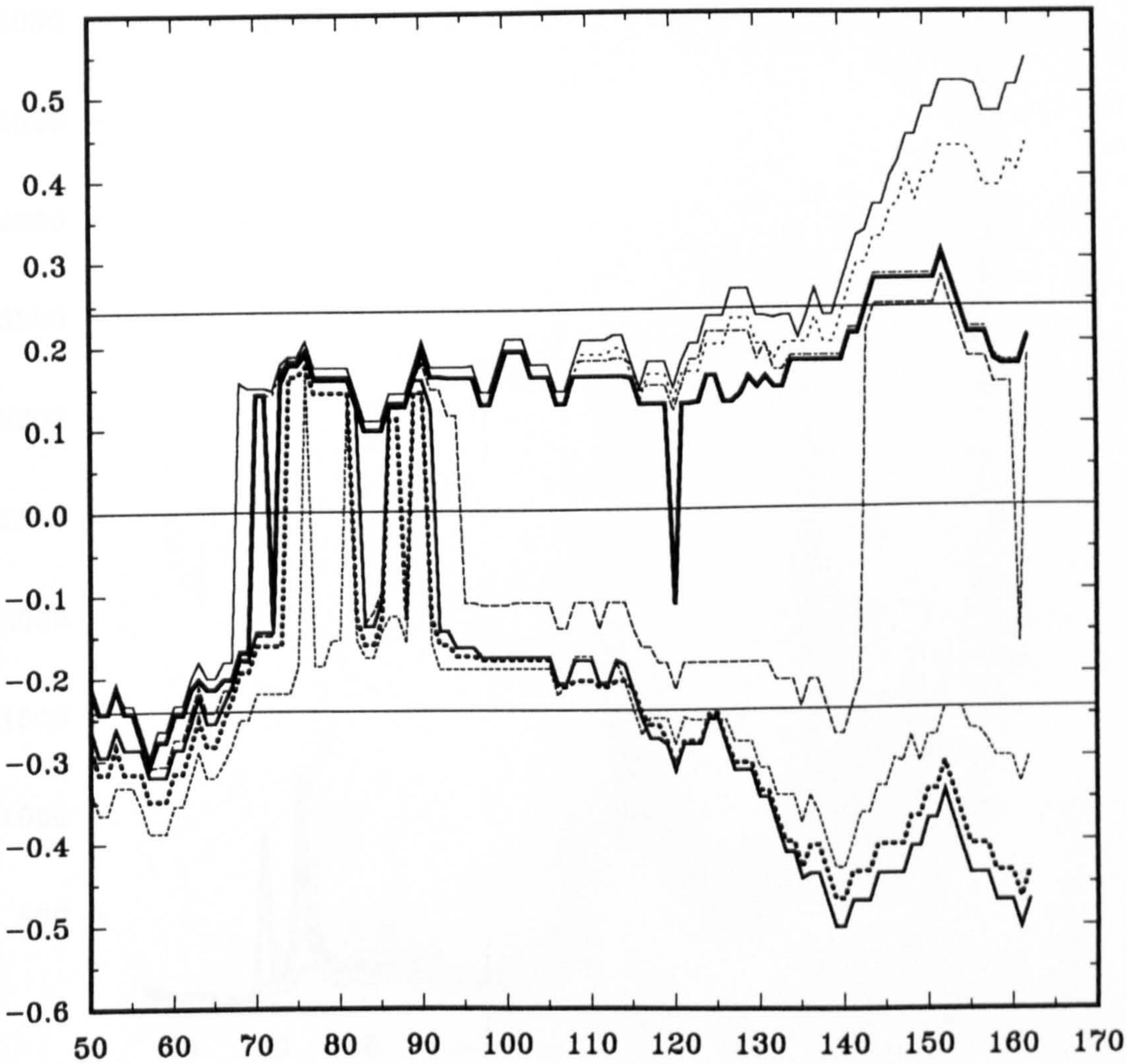


Figure B.16-15. *u*-plots constructed using a moving window of size *30* for the raw parametric predictors for data set *TUSAB*.

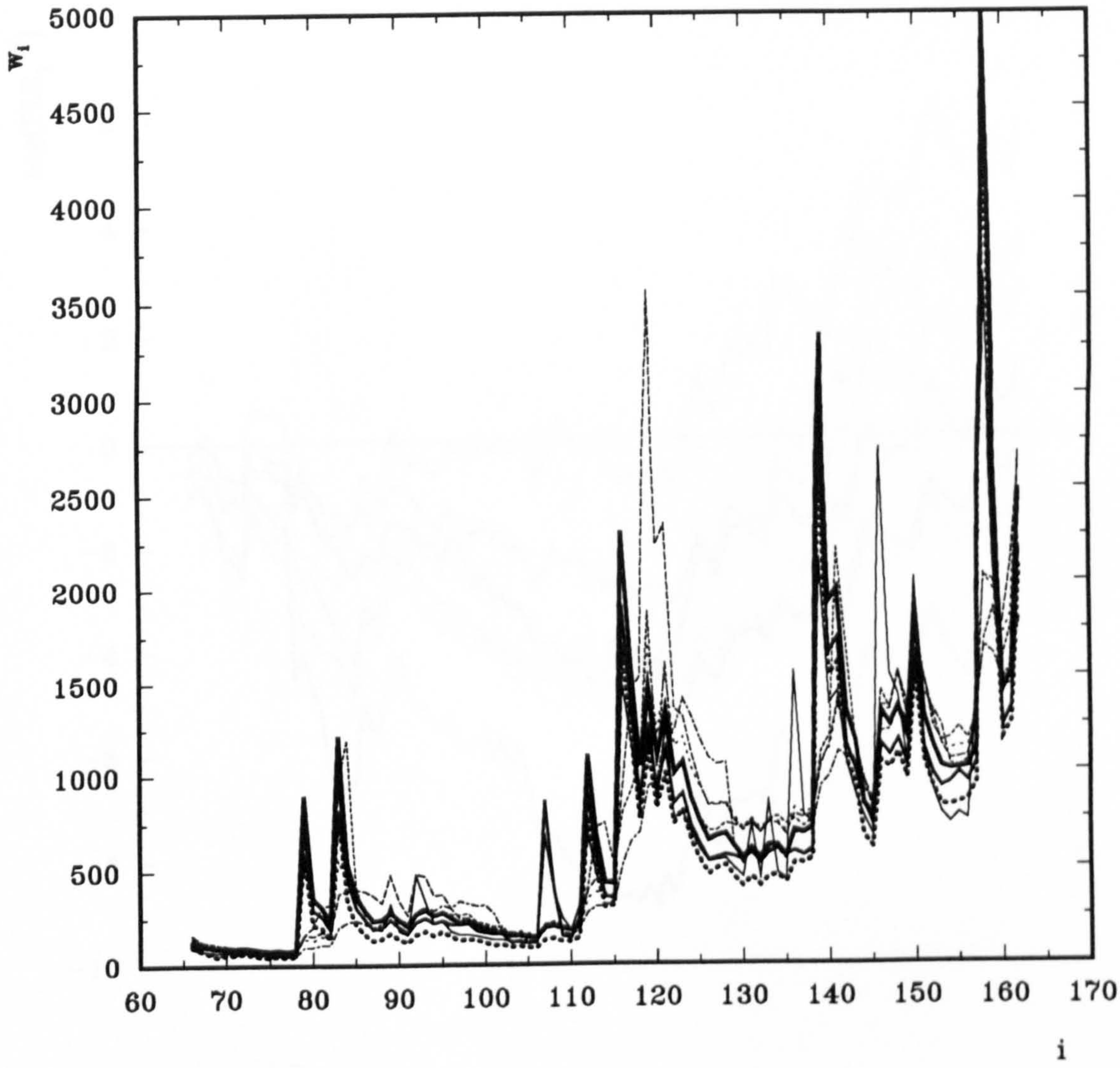


Figure B.16-16. Median predictions from the recalibrated (no window) non-parametric predictors plotted against failure number for data set *TUSAB*.

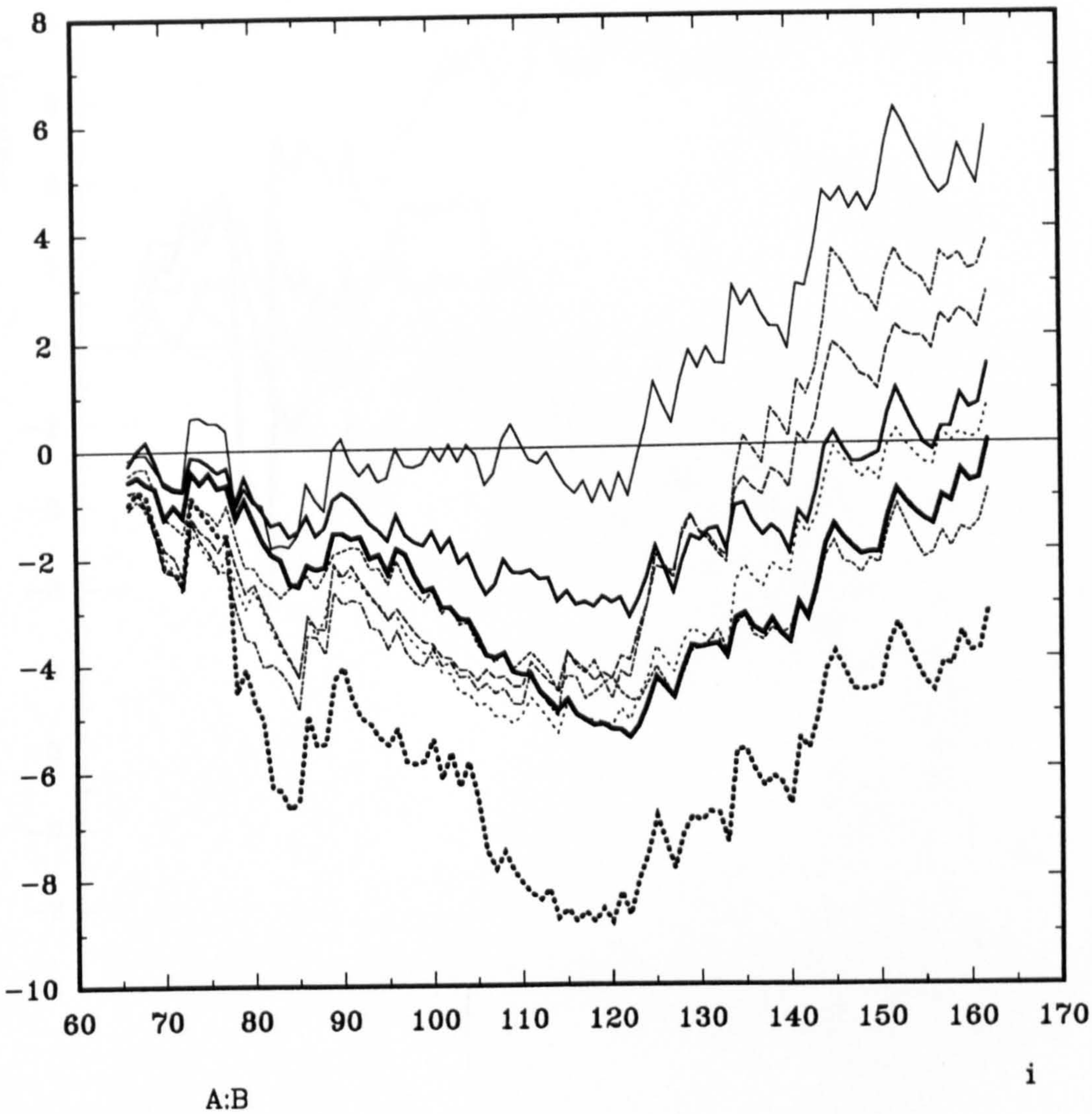


Figure B.16-17. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus the raw non-parametric predictors for data set *TUSAB*.

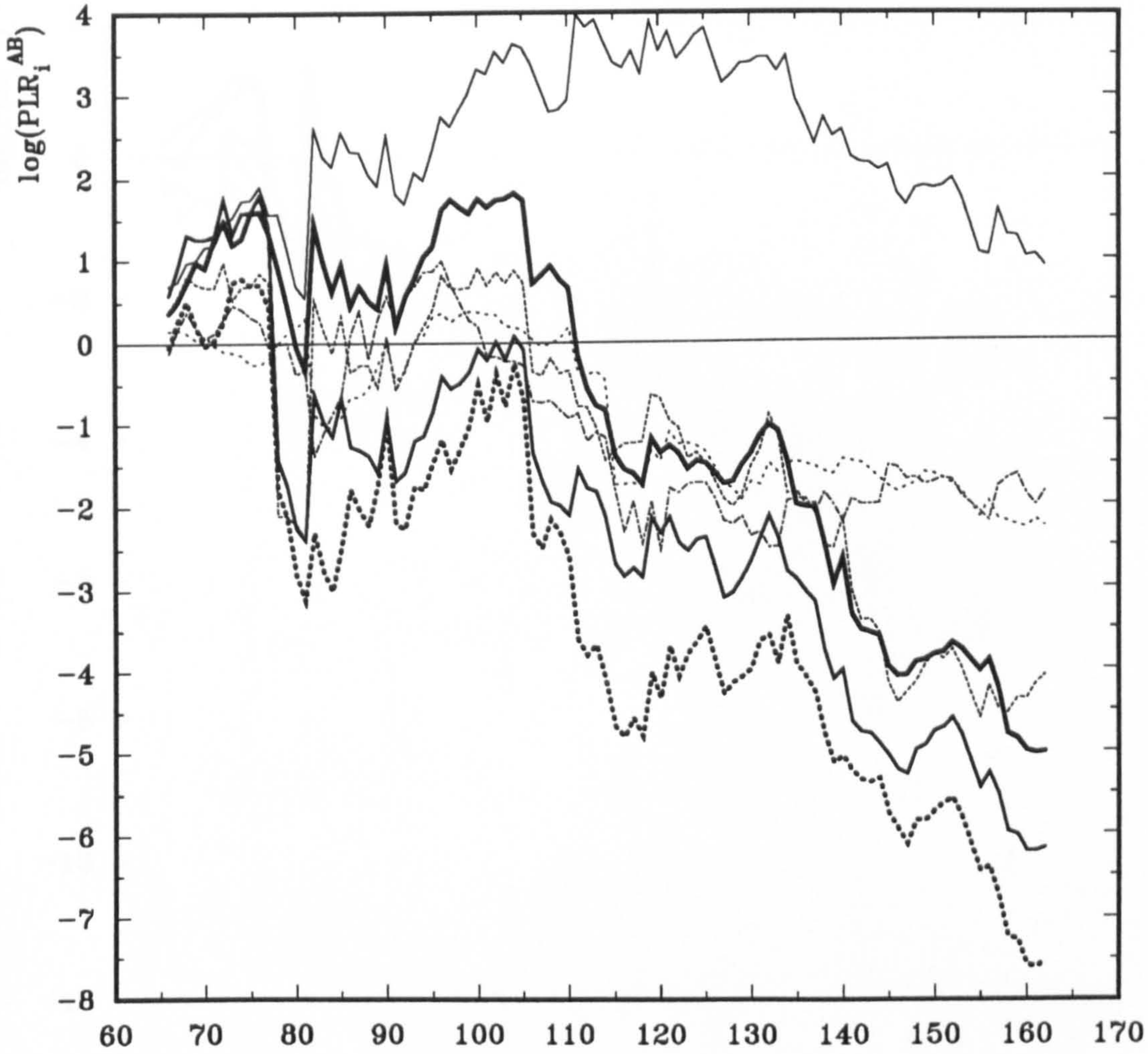


Figure B.16-18. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *CM3S* for data set *TUSAB*.

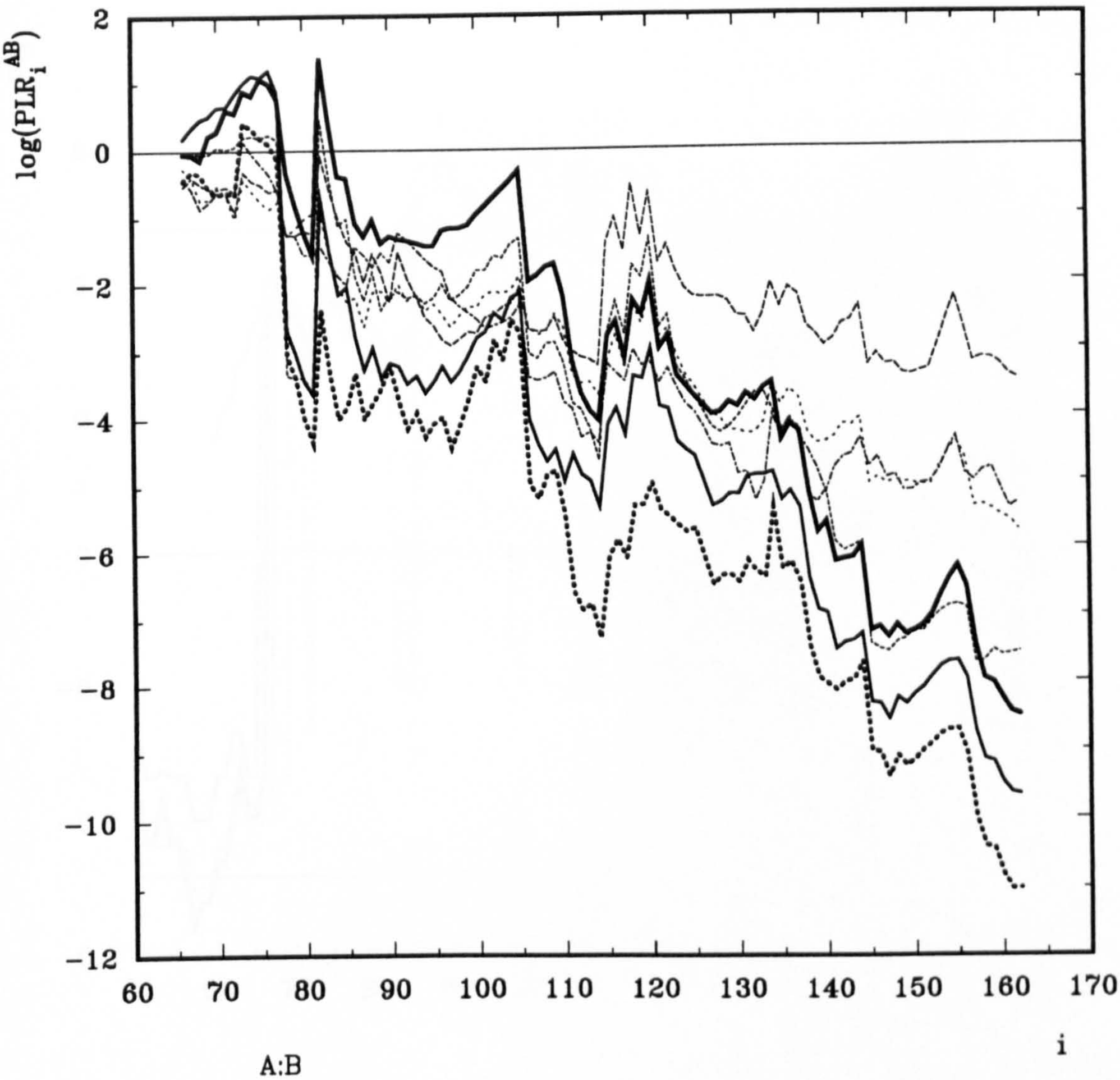


Figure B.16-19. *log(PLR)*-plots for the recalibrated (no window) non-parametric predictors versus *MOS* for data set *TUSAB*.

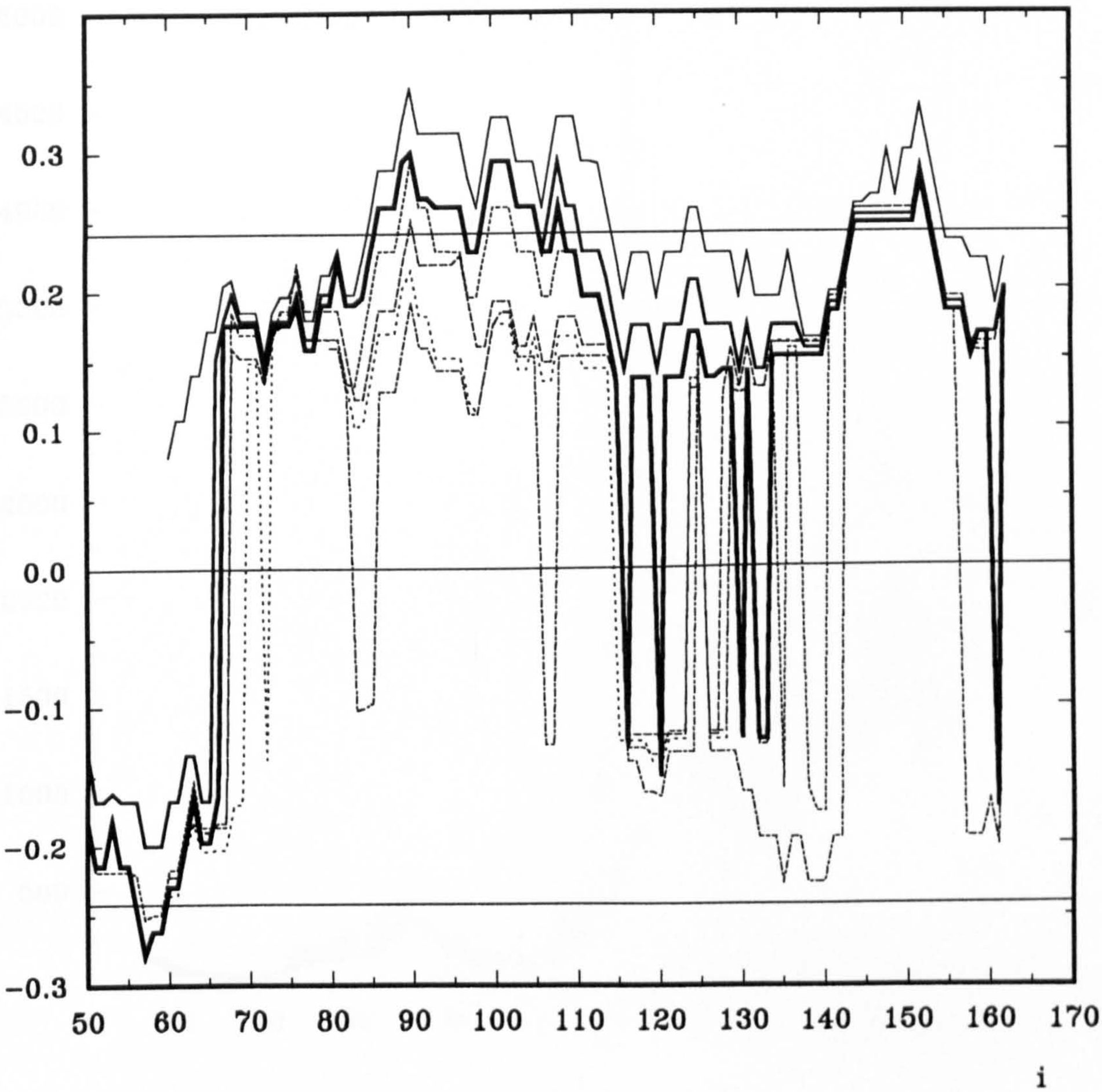


Figure B.16-20. *u*-plots constructed using a moving window of size *30* for the raw non-parametric predictors for data set *TUSAB*.

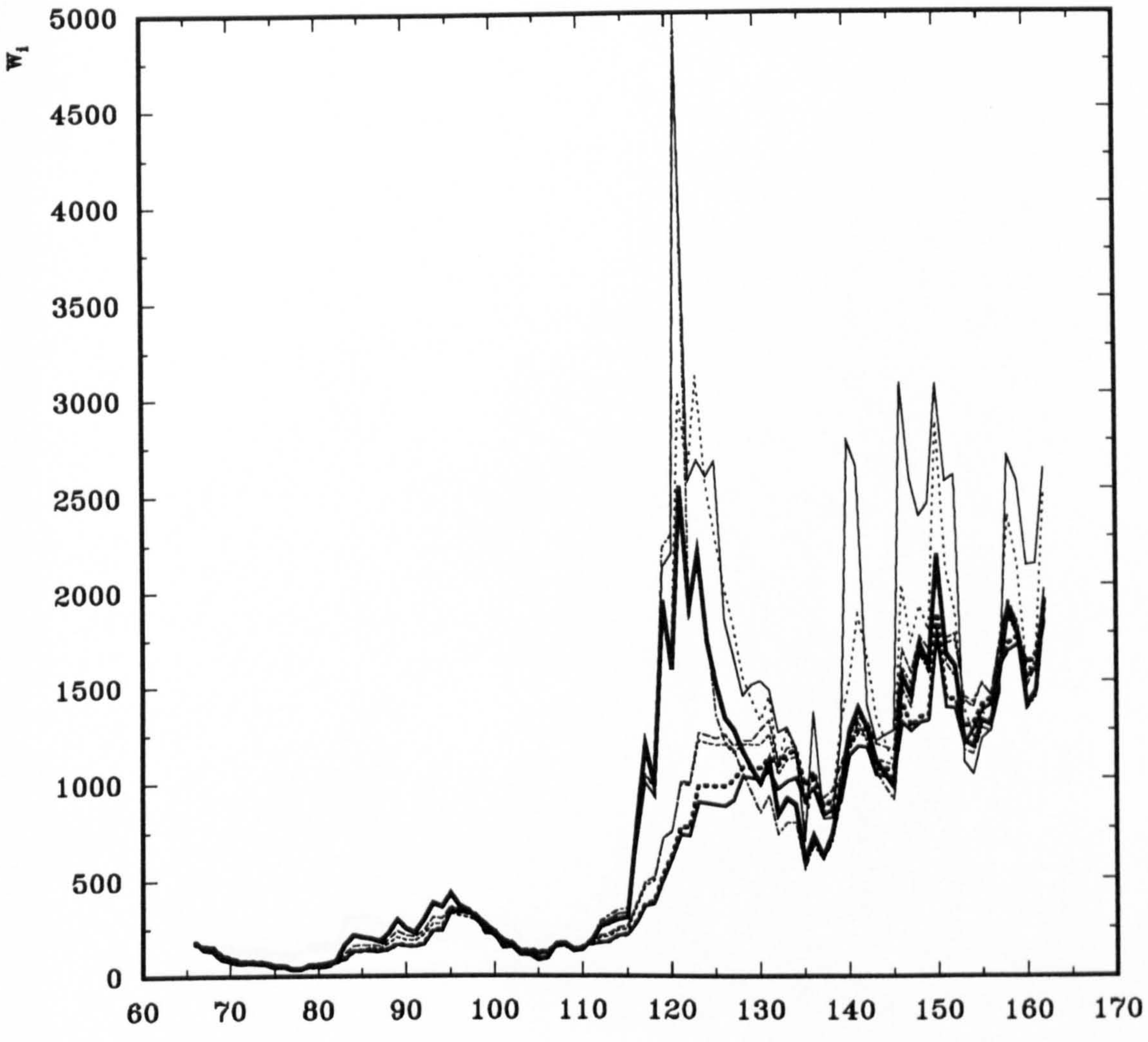


Figure B.16-21. Median predictions from the recalibrated (window = *20*) parametric predictors plotted against failure number for data set *TUSAB*.

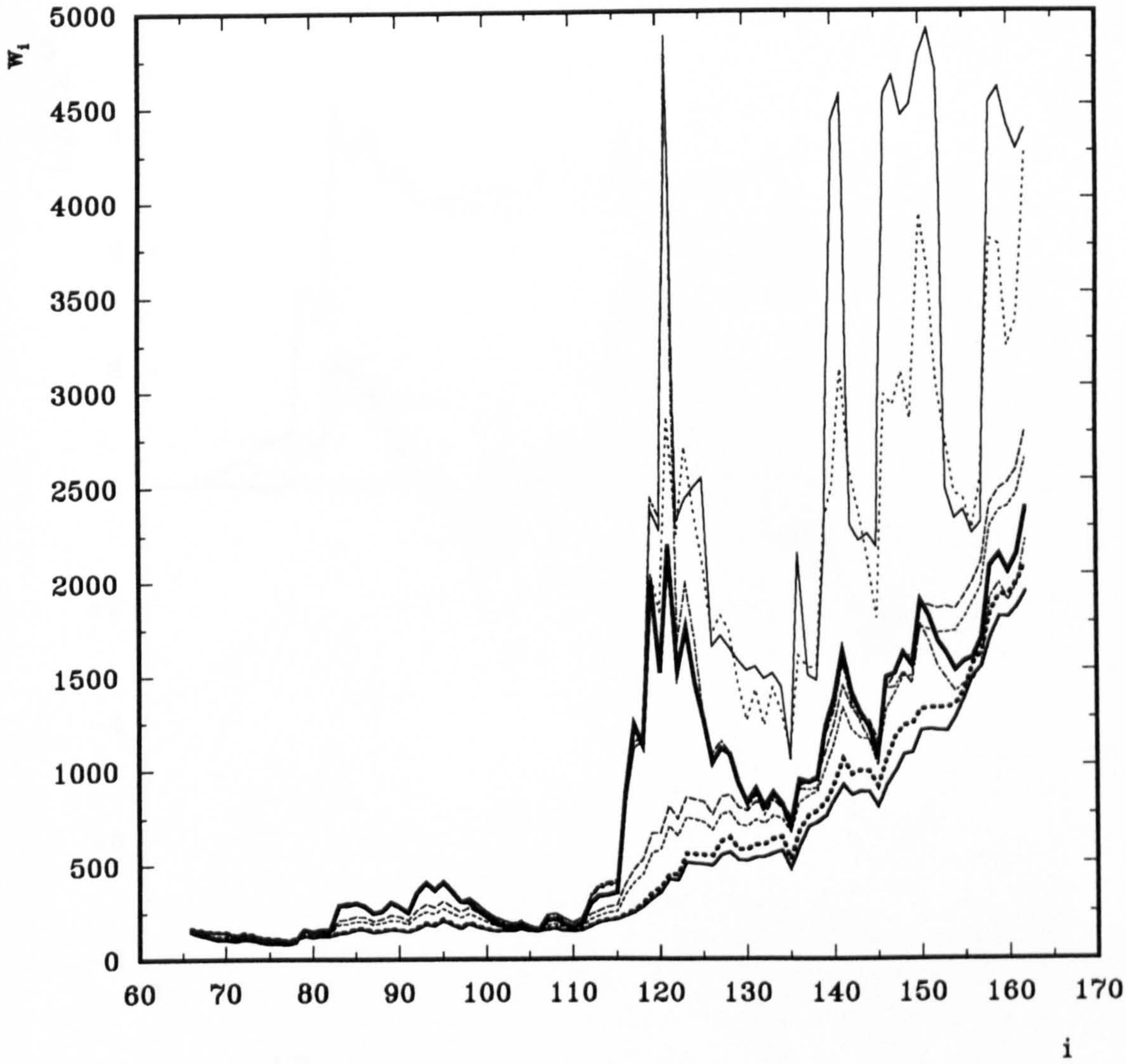


Figure B.16-22. Median predictions from the recalibrated (window = *50*) parametric predictors plotted against failure number for data set *TUSAB*.

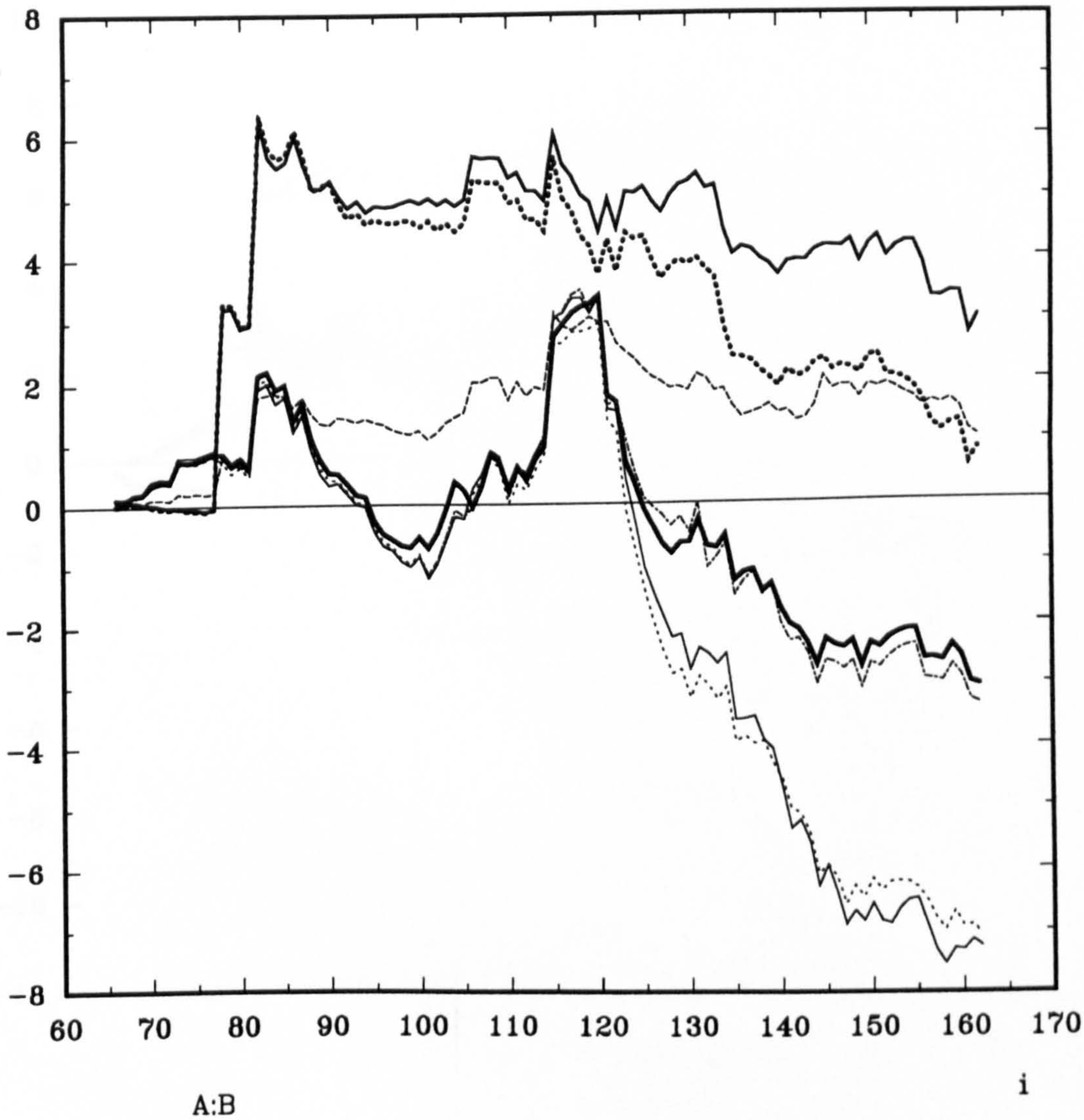


Figure B.16-23. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus *DUS20* for data set *TUSAB*.

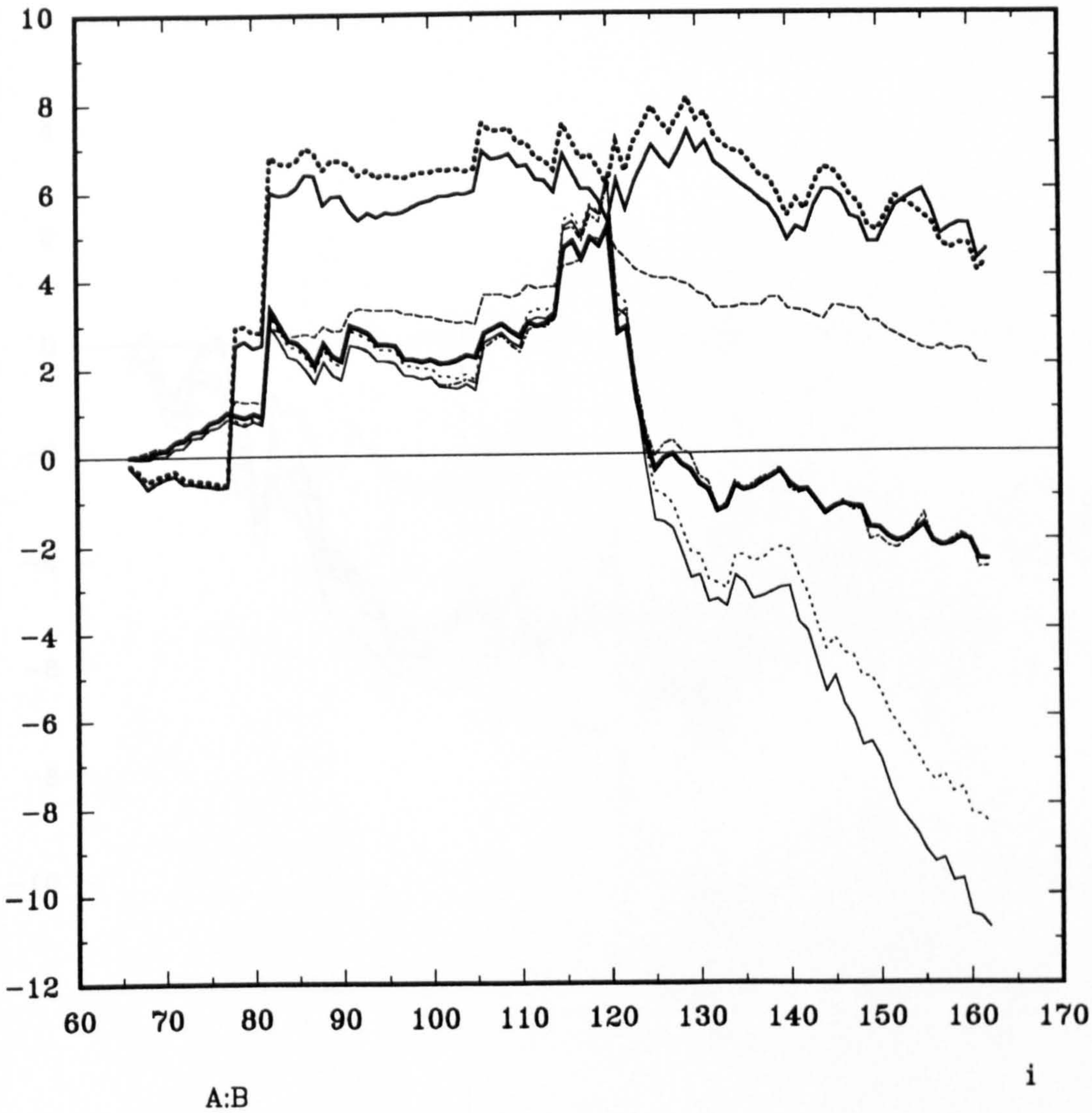


Figure B.16-24. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus *DUS50* for data set *TUSAB*.

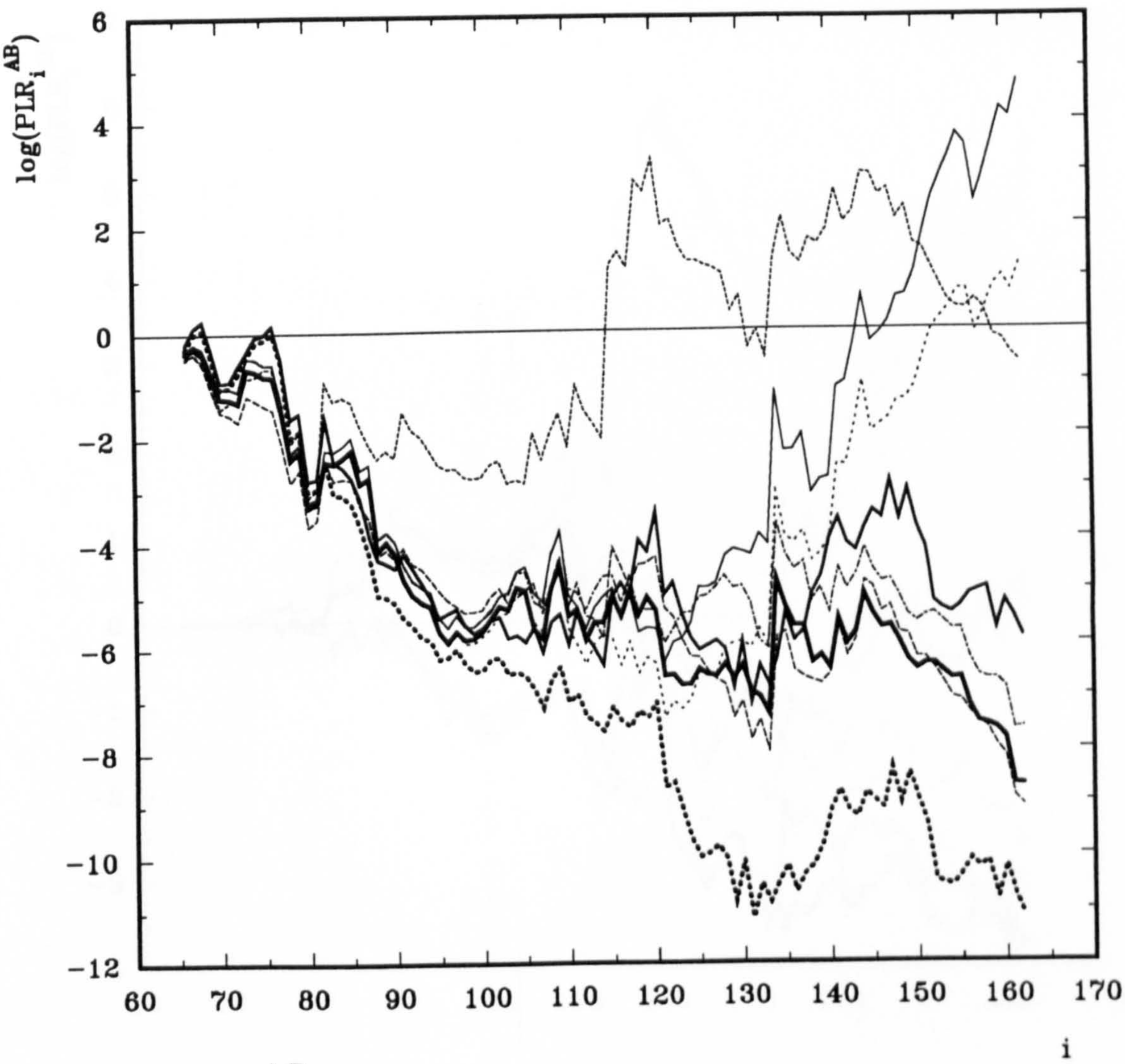


Figure B.16-25. *log(PLR)*-plots for the recalibrated (window = *20*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *TUSAB*.

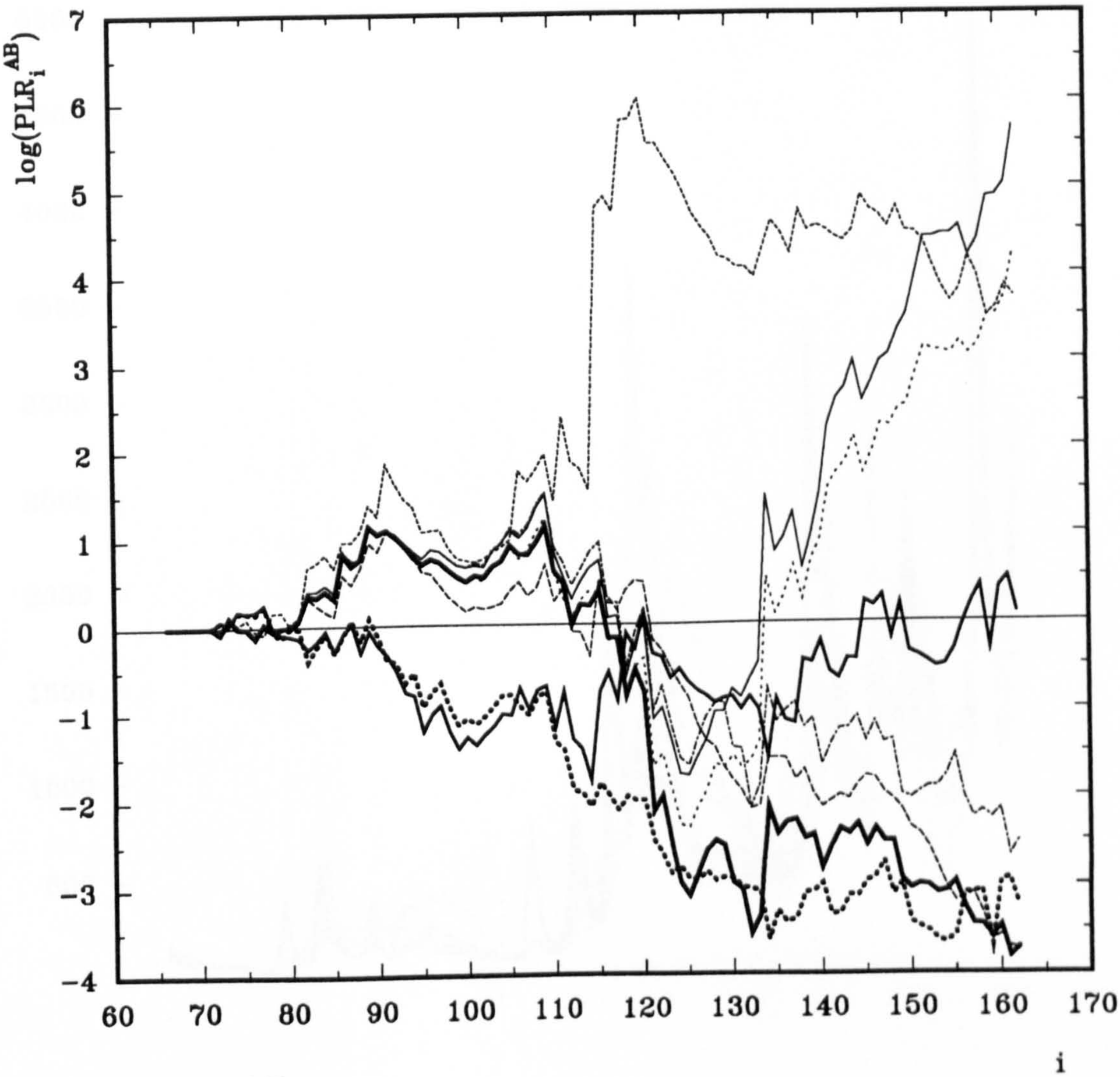


Figure B.16-26. *log(PLR)*-plots for the recalibrated (window = *50*) parametric predictors versus the recalibrated (no window) parametric predictors for data set *TUSAB*.

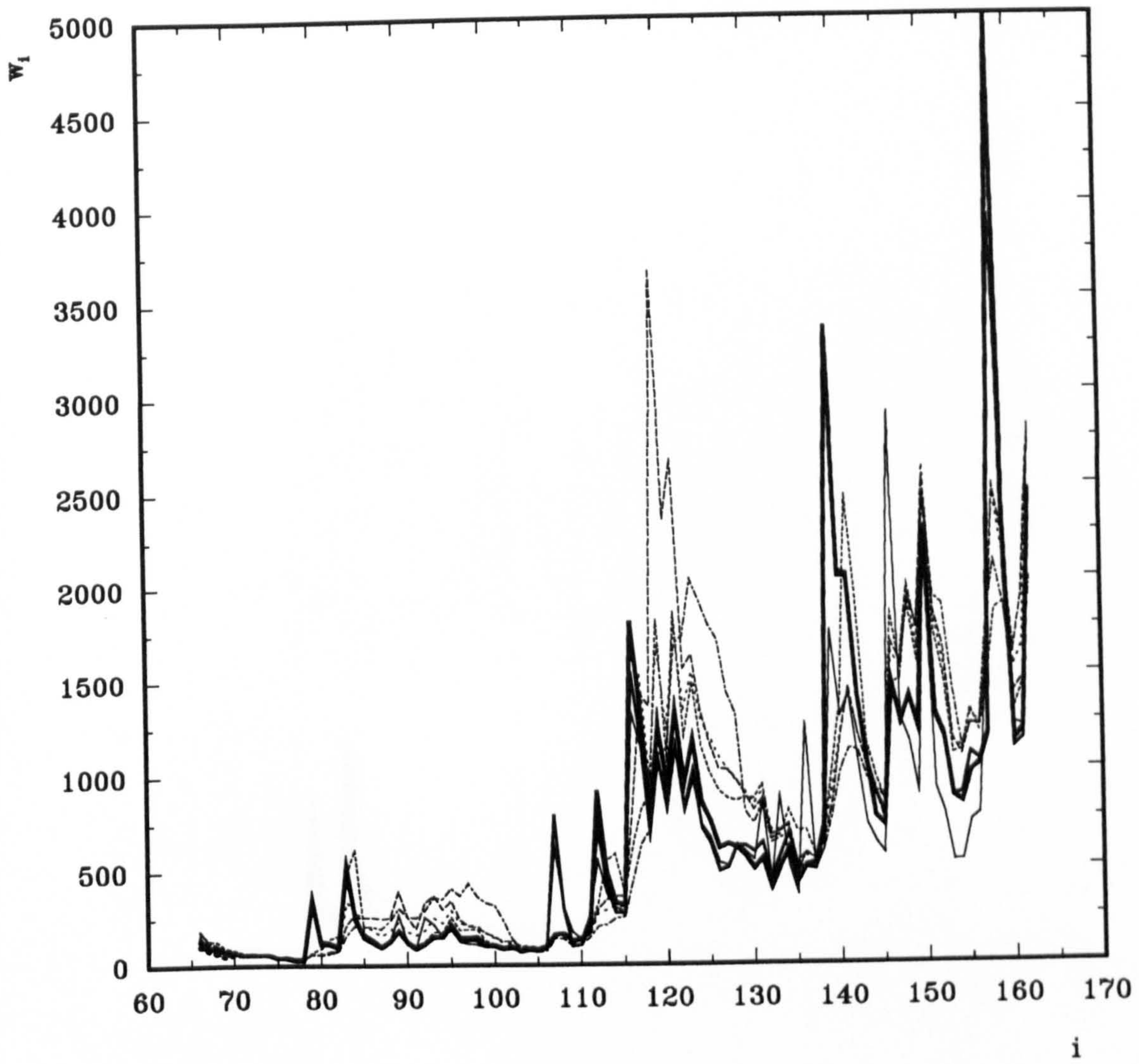


Figure B.16-27. Median predictions from the recalibrated (window = *20*) non-parametric predictors plotted against failure number for data set *TUSAB*.

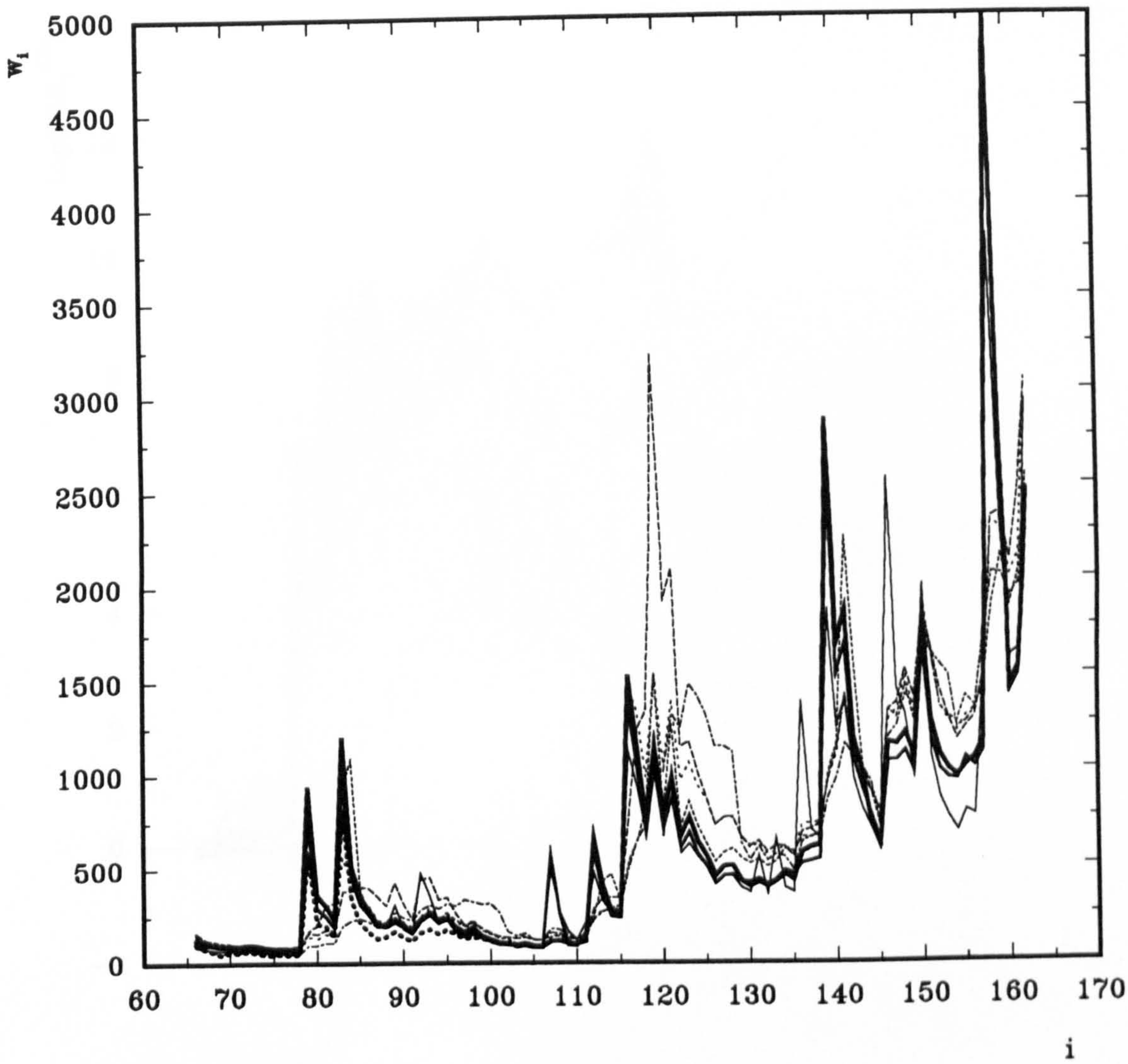


Figure B.16-28. Median predictions from the recalibrated (window = *50*) non-parametric predictors plotted against failure number for data set *TUSAB*.

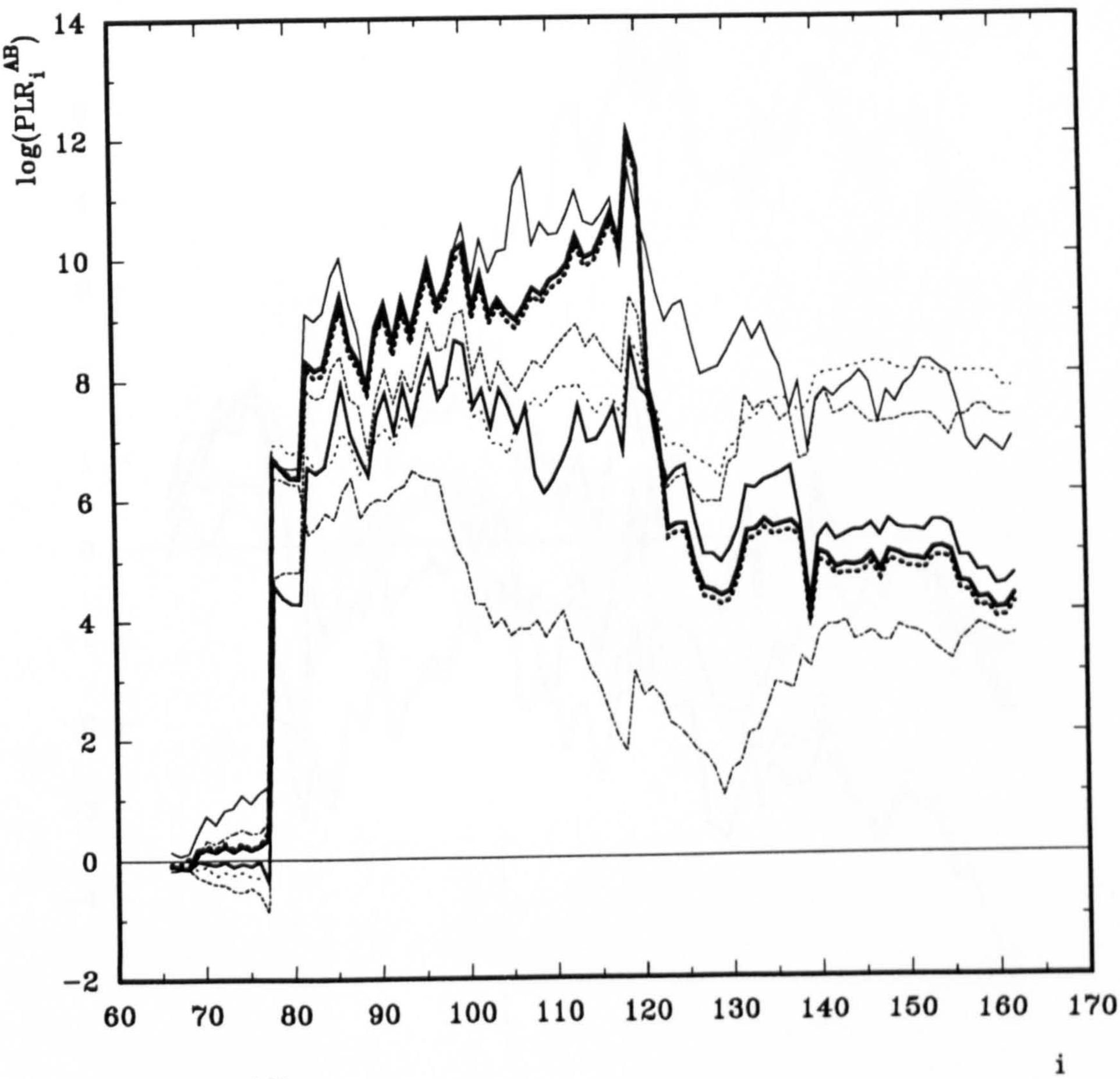


Figure B.16-29. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus *CM3S20* for data set *TUSAB*.

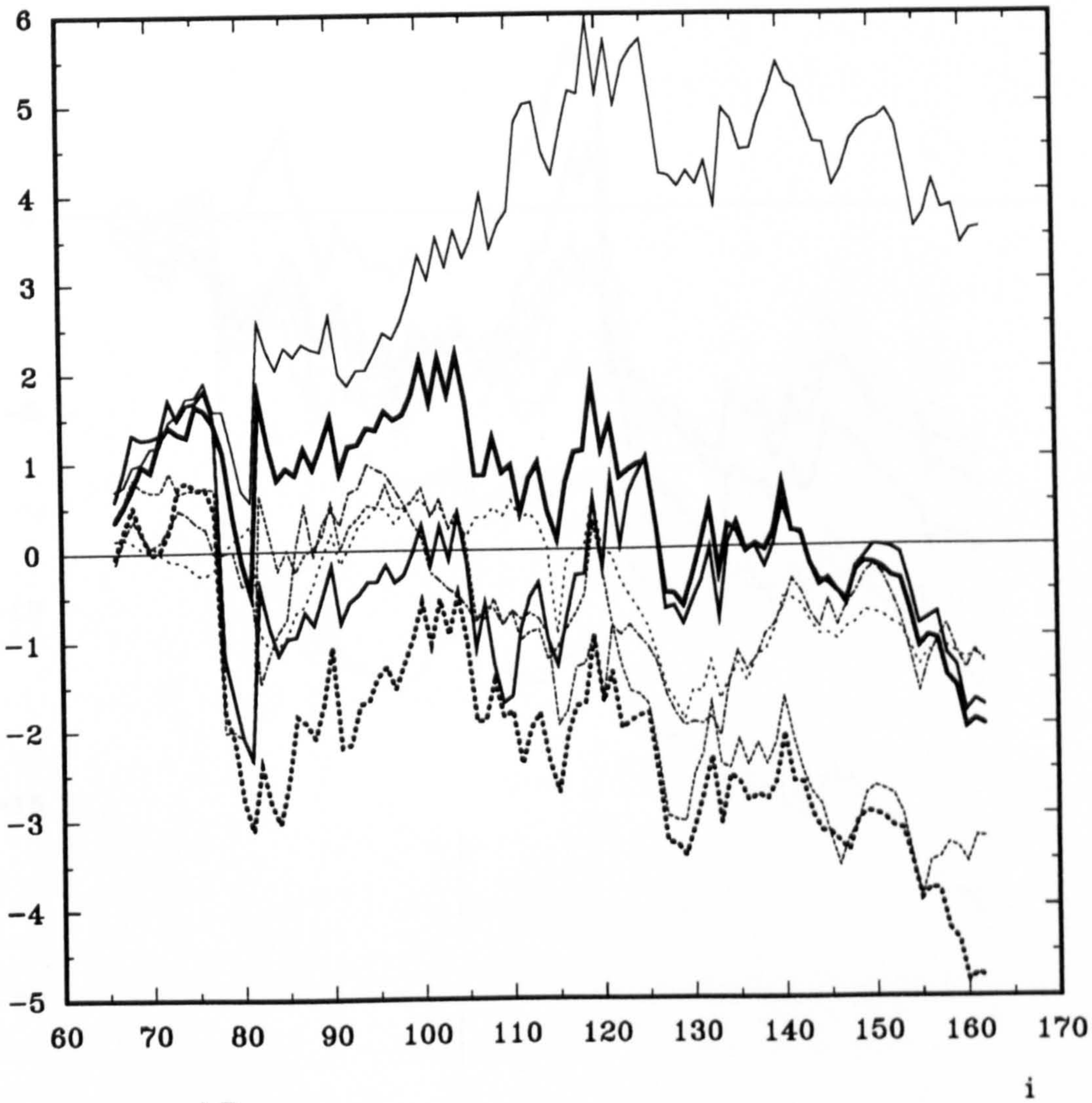


Figure B.16-30. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus *CM3S50* for data set *TUSAB*.

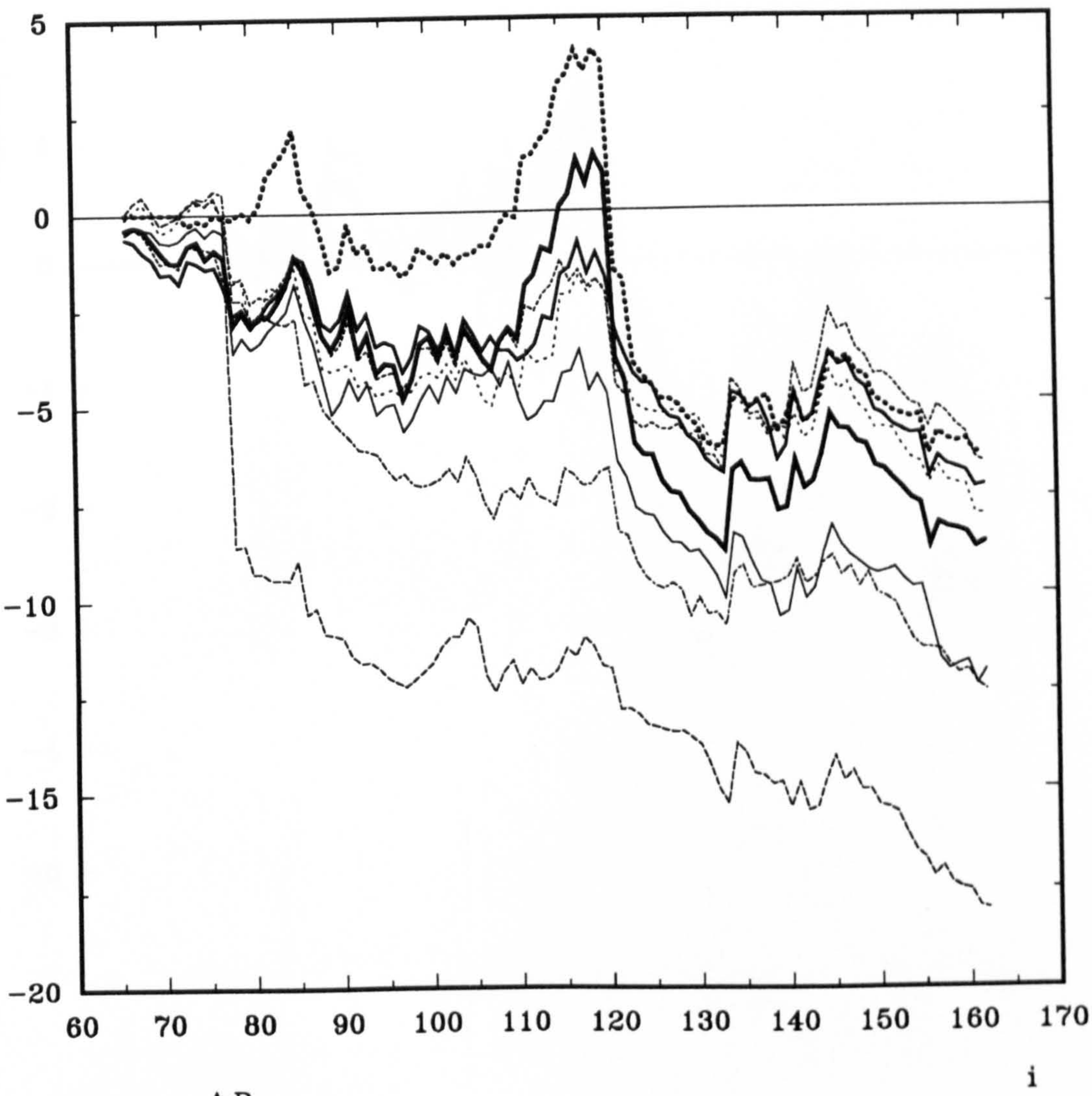


Figure B.16-31. *log(PLR)*-plots for the recalibrated (window = *20*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *TUSAB*.

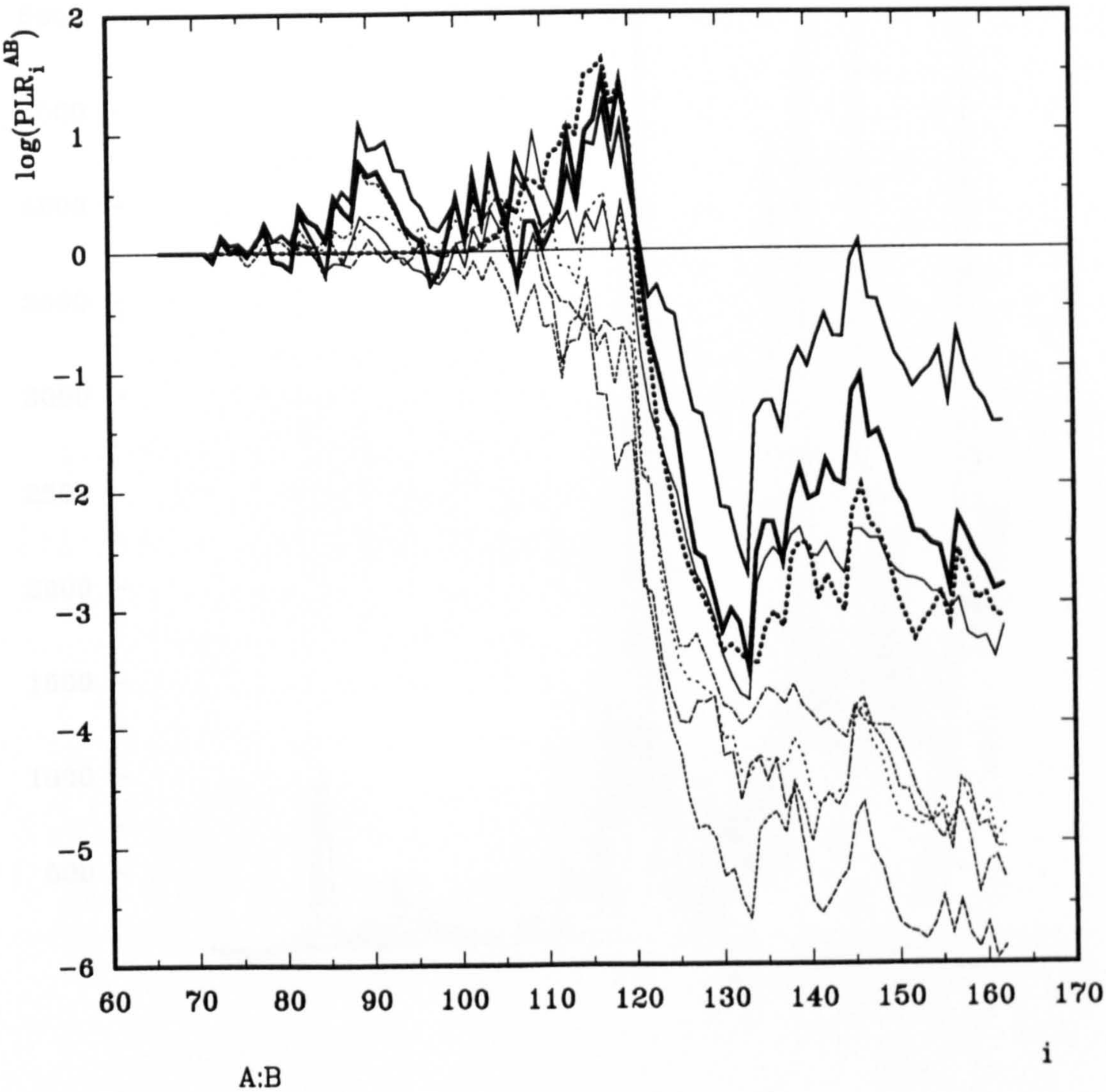


Figure B.16-32. *log(PLR)*-plots for the recalibrated (window = *50*) non-parametric predictors versus the recalibrated (no window) non-parametric predictors for data set *TUSAB*.

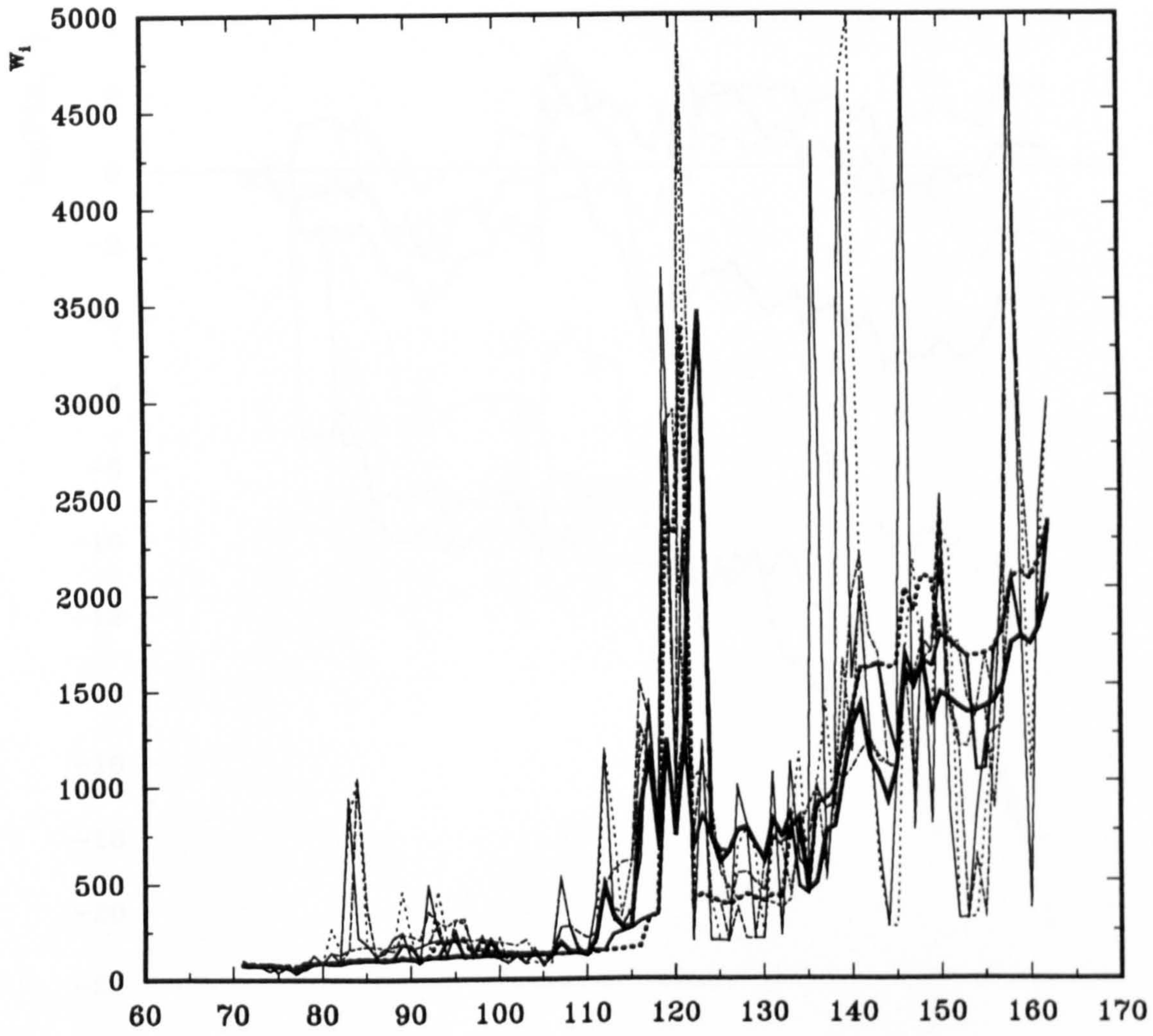


Figure B.16-33. Median predictions from the meta-predictors plotted against failure number for data set *TUSAB*.

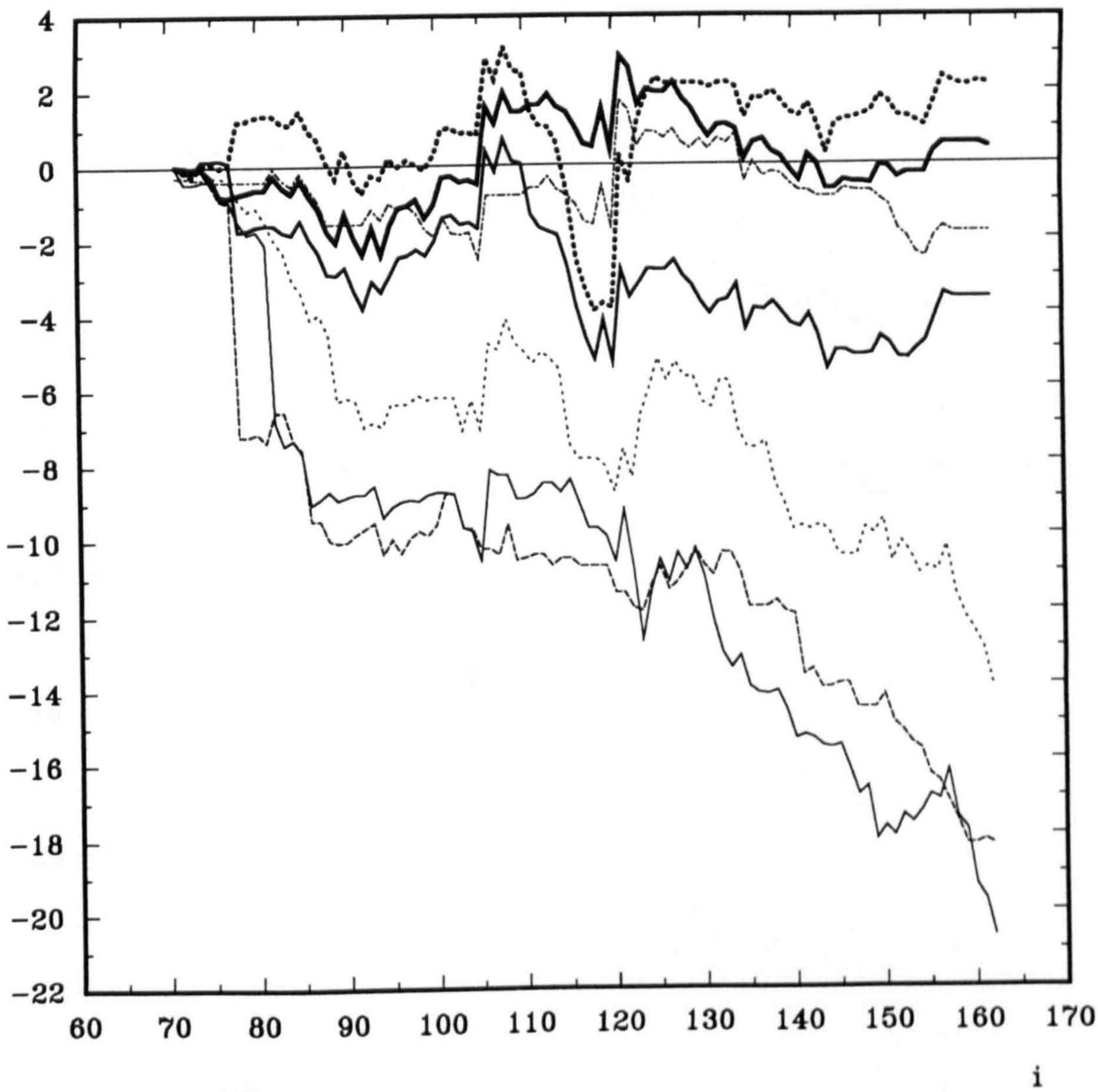


Figure B.16-34. *log(PLR)*-plots for the meta-predictors versus *M10* for data set *TUSAB*.

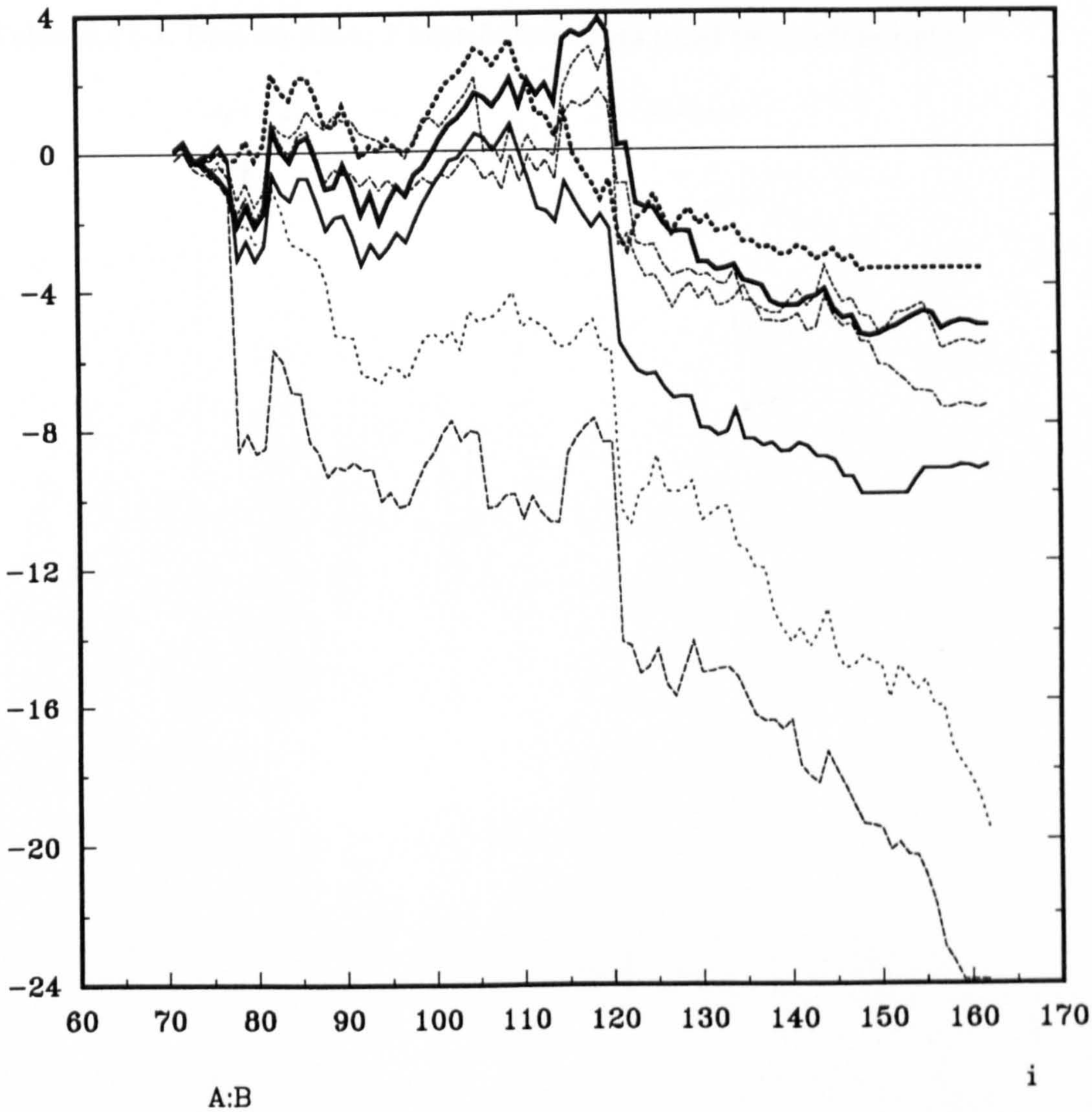


Figure B.16-35. *log(PLR)*-plots for the meta-predictors versus *MOS* for data set *TUSAB*.

B.17 Data Set SMA

765.	6444.	3470.	17674.	6761.	21970.	12091.

Table B.17-1. Data set *SMA*; 7 inter-failure times (read from left to right).

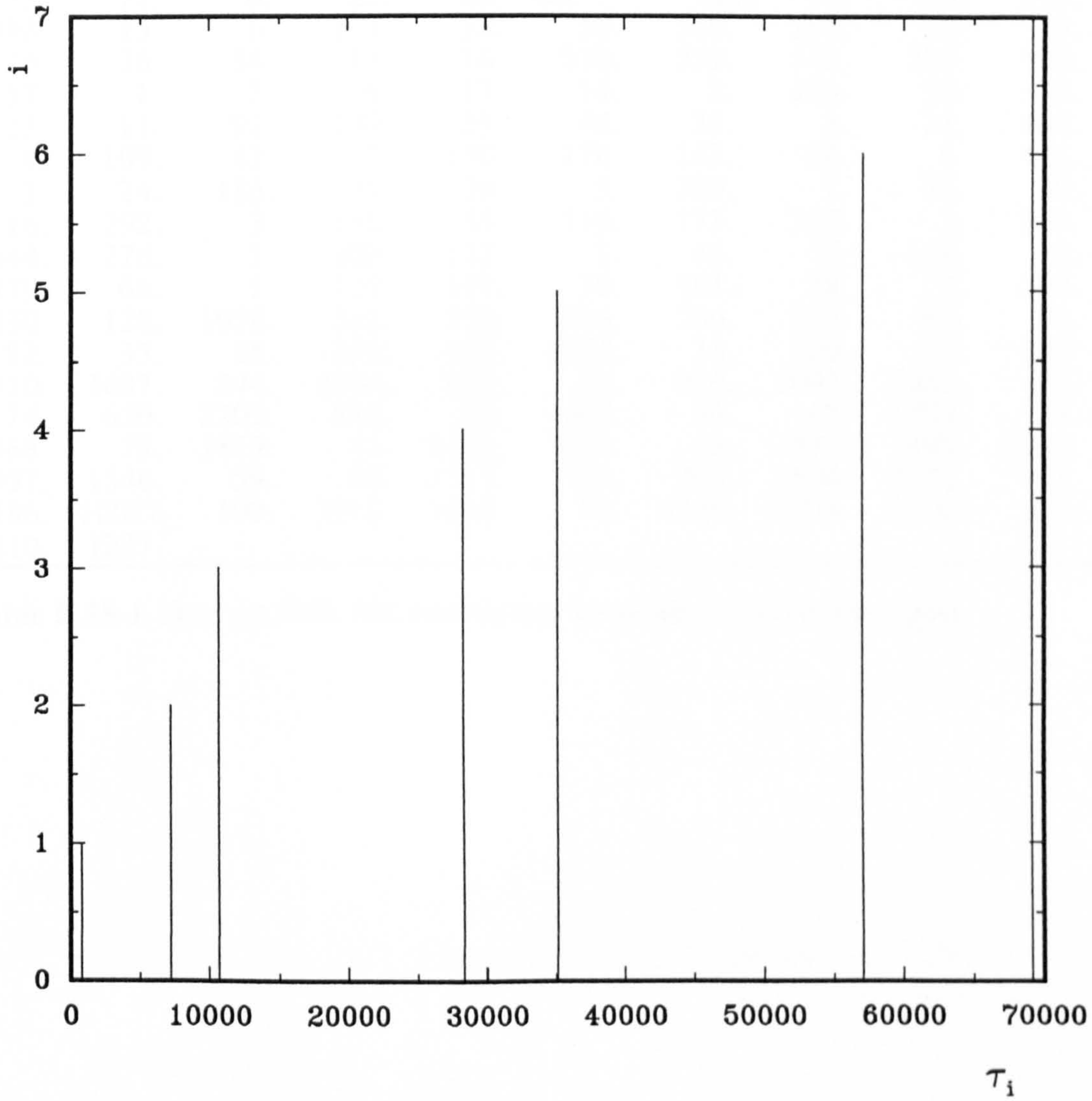


Figure B.17-2. Cumulative number of failures plotted against total elapsed time for data set *SMA*.

B.18 Data Set SMI

60.	30.	540.	107.	23.	579.	271.	6.	54.	25.
55.	71.	6.	22.	60.	66.	0.5	18.	15.	513.
398.	15.	6.	142.	32.	50.	110.	287.	19.	19.
126.	36.	54.	15.	16.	330.	551.	142.	283.	106.
57.	1.	2.	6.	17.	14.	2.	106.	90.	118.
23.	11.	92.	249.	28.	44.	31.	3.	21.	100.
4.	199.	42.	7.	150.	176.	142.	24.	6.	141.
3.	24.	185.	39.	29.	5.	309.	7.	33.	20.
16.	292.	3.	138.	55.	119.	175.	105.	3.	553.
644.	276.	1.	203.	117.	1.	45.	5.	128.	10.
179.	66.	1.	127.	117.	30.	161.	28.	4.	302.
430.	128.	1078.	343.	520.	206.	206.	347.	60.	90.
82.	35.	35.	293.	158.	1975.	33.	70.	35.	925.
1710.	1687.	244.	2384.	856.	83.	966.	1003.	3960.	75.
74.	620.	2209.	845.	55.	409.	36.	15.	1404.	88.
468.	79.	1819.	41.	8352.	250.	56.	1626.	499.	5226.
1957.	1346.	59.	98.	1717.	722.	306.	1506.	5252.	951.
2186.	10027.	109.	3268.	3845.	76.	4226.	7594.	3100.	586.
2810.	1237.								

Table B.18-1. Data set *SMI*; 182 inter-failure times (read from left to right).

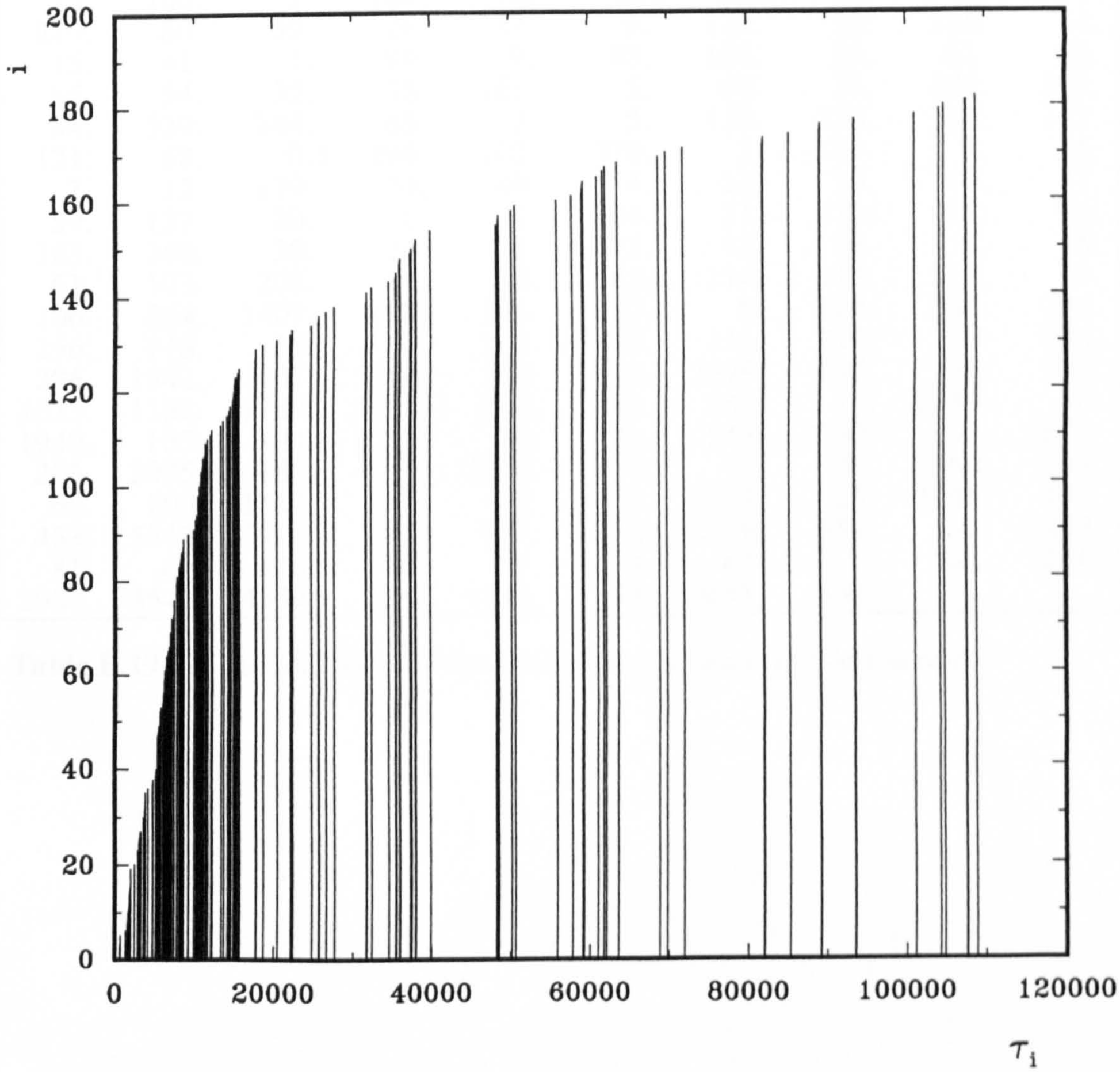


Figure B.18-2. Cumulative number of failures plotted against total elapsed time for data set *SMI*.

B.19 Data Set SNE

697.	121.	4.	16.	94.	15.	5.	90.	77.	68.
15.	160.	1.	104.	16.	9.	10.	12.	4.	10.
210.	60.	39.	26.	33.	9.	178.	30.	116.	14.
15.	41.	1.	99.	9.	45.	104.	50.	81.	89.
85.	54.	32.	36.	166.	5.	69.	34.	180.	562.
84.	339.	244.	65.	2.	5.	130.	233.	104.	117.
121.	48.	0.5	199.	101.	370.	3.	25.	3.	55.
7.	12.	179.	34.	49.	4.	13.	10.	40.	57.
59.	127.	20.	1.	21.	104.	31.	172.	21.	75.
163.	160.	30.	24.	5.	472.	12.	18.	9.	75.
61.	103.	205.	12.	18.	83.	114.	213.	212.	9.
106.	264.	1407.	2.	296.	727.	5.	105.	344.	294.
256.	118.	13.	47.	563.	482.	151.	310.	110.	335.
296.	1842.	607.	3264.	350.	470.	2999.	692.	26.	586.
1025.	1102.	1789.	1288.	593.	288.	881.	13.	2149.	6.
1940.	105.	494.	39.	79.	24.	540.	1040.	38.	1876.
205.	2095.	788.	1.	2668.	470.	10.	20.	560.	645.
65.	100.	1112.	340.	3.	4973.	5251.	25.	1048.	111.
453.	5347.	1919.	185.	157.	30.	2859.	556.	55.	4892.
81.	61.	476.	63.	3.	3.	62.	1.	44.	1236.
2986.	3546.	4339.	4236.	1893.	198.	9698.	353.		

Table B.19-1. Data set *SNE*; 208 inter-failure times (read from left to right).

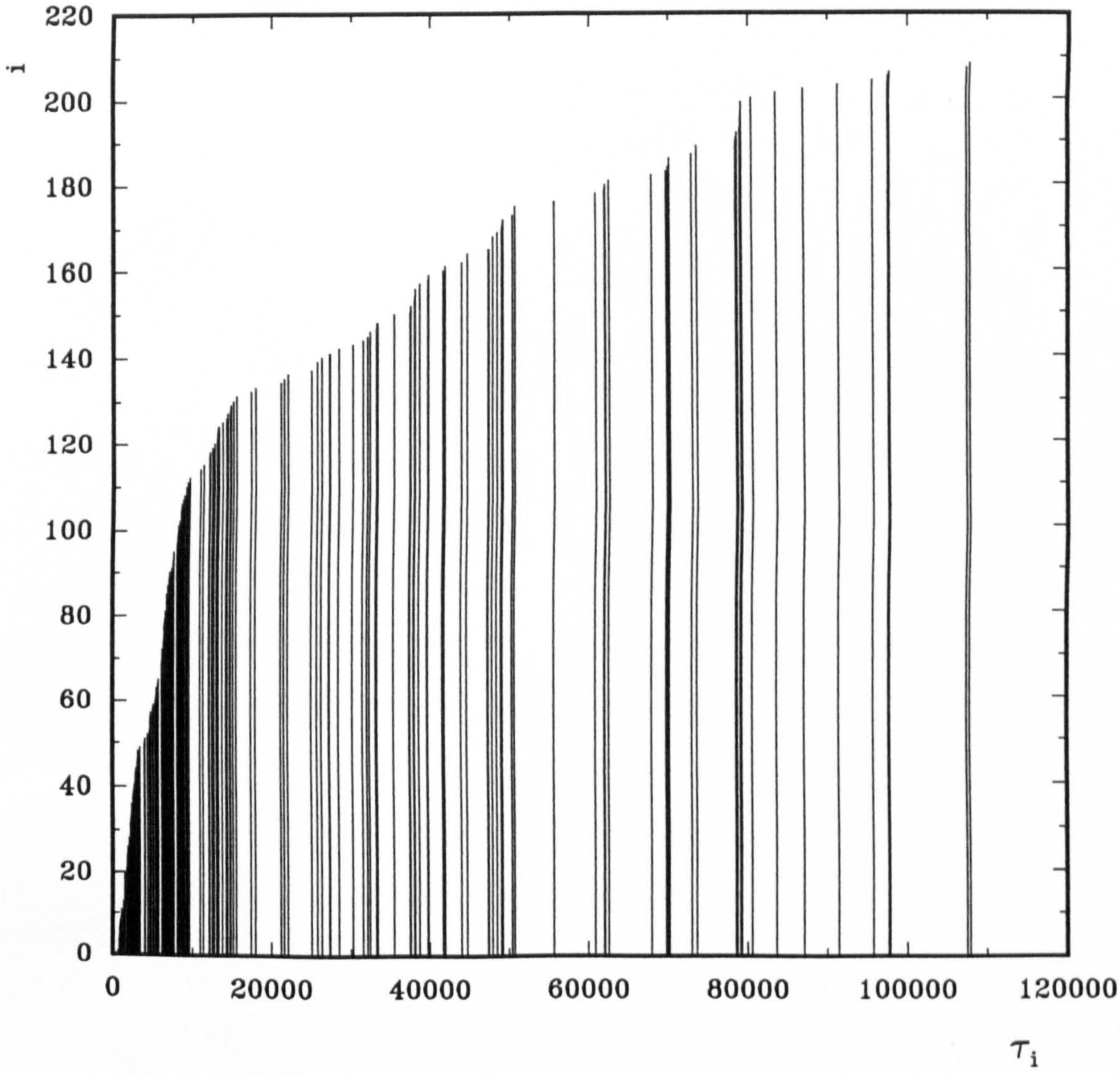


Figure B.19-2. Cumulative number of failures plotted against total elapsed time for data set *SNE*.