Statistical Papers 38, 461–463 (1997)

Statistical Papers

Addendum

O. Hübler (1997): "Pseudo latent models: Goodness of fit measures, residuals, estimation, testing and simulation." *Statistical Papers* 38, 271 - 285

In the following we give Tables 1 - 3 belonging to Hübler's article. Unfortunately they were not printed in the last issue of *Statistical Papers*.

Table 1: MSE for estimated coefficients and variances between reference model and different pseudo latent models based on 1000 and 100 observations, respectively, with 100 replications

N	1000	100	1000	100	1000	100	1000	100
	$\hat{\beta}_{k;P}$		$\hat{\beta}_{k;o}$		$\hat{\beta}_{k;g}$		$\hat{\beta}_{k;s}$	
β_0	5.0629	147.12	5.0633	253.88	5.0629	147.12	5.1331	4103.3
β_1	0.0041	0.7006	0.0041	1.2893	0.0041	0.7006	0.0039	65.816
β_2	0.0101	3.4472	0.0102	5.1618	0.0101	3.4472	0.0121	70.273
	$\hat{\sigma}^2_P$		$\hat{\sigma}^2_o$		$\hat{\sigma}^2_g$		$\hat{\sigma}^2_s$	
σ^2_0	0.0011	$0.4562 \cdot 10^{11}$	$0.1830 \cdot 10^{-5}$	$0.3336 \cdot 10^{11}$	$0.1752 \cdot 10^{-5}$	$0.1891 \cdot 10^{-3}$	$0.1227 \cdot 10^{-5}$	$0.7743 \cdot 10^{13}$
σ^2_1	$0.4566 \cdot 10^{-5}$	$0.3629 \cdot 10^{10}$	$0.1048 \cdot 10^{-6}$	$0.2244 \cdot 10^{7}$	$0.4915 \cdot 10^{-7}$	$0.8911 \cdot 10^{-5}$	$0.7034 \cdot 10^{-7}$	$0.3542 \cdot 10^{9}$
σ^2_2	$0.1796 \cdot 10^{-5}$	$0.2454 \cdot 10^{8}$	$0.1934 \cdot 10^{-7}$	$0.1333 \cdot 10^{6}$	$0.1928 \cdot 10^{-7}$	$0.3926 \cdot 10^{-5}$	$0.1063 \cdot 10^{-7}$	$0.1097 \cdot 10^{10}$

Table 1 (continued)

1000	100	1000	100	1000	100
$\hat{\beta}_{k;OLS,g}$		$\hat{\beta}_{k;EGLS,o}$		$\hat{\beta}_{k;EGLS,g}$	
5.0214	55.881	5.1862	37168	4.9050	7255.7
0.0032	0.5716	0.0039	1365.7	0.0019	26 283
0.0103	1.5056	0.0119	611.03	0.0025	91.237
$\hat{\sigma}^2_{OLS,g}$		$\hat{\sigma}^2_{EGLS,o}$		$\hat{\sigma}^2_{EGLS,g}$	
$0.1842 \cdot 10^{-5}$	$0.2122 \cdot 10^{-3}$	$0.1707 \cdot 10^{-5}$	$0.7258 \cdot 10^{-2}$	$0.2010 \cdot 10^{-5}$	$0.1619 \cdot 10^{14}$
$0.6750 \cdot 10^{-7}$	$0.8774 \cdot 10^{-5}$	$0.7525 \cdot 10^{-7}$	0.0522	$0.6692 \cdot 10^{-7}$	$0.2094 \cdot 10^{9}$
$0.1616 \cdot 10^{-7}$	$0.2235 \cdot 10^{-5}$	$0.1320 \cdot 10^{-7}$	$0.6825 \cdot 10^{-5}$	$0.1990 \cdot 10^{-7}$	$0.2596 \cdot 10^{10}$

Table 2: Average coefficients of determination and MSE between R^2 of the reference model and different pseudo latent models based on alternative statistical distributions and latent models

N	1000		100		1000		100		1000		100		1000		100	
x_1	$\chi^2(1)$				$N(0;1)$				uniform (100)				$\log N(2;1)$			
x_2	$\chi^2(2)$				$N(0;1)$				uniform (200)				$t(5)$			
u	$N(0;1)$				$N(0;1)$				$N(0;25)$				$N(0;1)$			
y	$-3+0.2x_1+0.4x_2+u$				$1+x_1+x_2+u$				$-150+x_1+x_2+u$				$-10+x_1+x_2+u$			
	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE	mean(R^2)	MSE
MF	0.4312	0.0018	0.5173	0.0296	0.2995	0.3361	0.1623	0.1612	0.6806	0.0364	0.3988	0.0358	0.4838	0.1796	0.4595	0.1686
MZ	0.4305	0.0019	0.5237	0.0384	0.9008	0.0053	0.7080	0.0581	0.8716	$0.2849 \cdot 10^{-3}$	0.5885	0.0032	0.9073	$0.6003 \cdot 10^{-4}$	0.9359	$0.4674 \cdot 10^{-3}$
g	0.8164	0.1638	0.8532	0.1751	0.9814	0.0178	0.8896	0.1277	0.9681	0.0098	0.7741	0.0408	0.9652	0.0039	0.9778	0.0018
s	0.4304	0.0024	0.5322	0.0405	0.8995	0.0052	0.7117	0.0592	0.8709	$0.3057 \cdot 10^{-3}$	0.5932	0.0049	0.9072	$0.6361 \cdot 10^{-4}$	0.9372	$0.4746 \cdot 10^{-3}$
OLS,g	0.4391	0.0092	0.6069	0.0839	0.9292	0.0095	0.8055	0.1028	0.8920	0.0027	0.5987	0.0054	0.9197	$0.2840 \cdot 10^{-3}$	0.9492	$0.5284 \cdot 10^{-3}$
"true"	0.4152		0.4489		0.8490		0.5912		0.8695		0.5794		0.9073		0.9375	

Table 3: Continuing Training Financed by the Firms- Estimated Pseudo Latent Models (PLM)					
		model (1)	model (2)	model (3)	
		[1]	[2]	[3]	[4]
<20 EMPLOYEES	x_1	-0.7993 (7.12)	-0.7347 (6.27)	-0.6160 (5.17)	-0.6162 (5.18)
$\geq$ 2000 EMPLOYEES		1.0100 (9.50)	0.7547 (6.59)	0.7231 (6.2)	0.7125 (6.08)
FEMALES		-0.0037 (0.03)		0.0143 (0.13)	0.0059 (0.05)
GRADUATES	x_2	5.5252 (6.65)		5.9382 (6.80)	5.8810 (6.74)
SKILLED WORKERS		-0.0239 (0.28)		0.0797 (0.90)	0.0745 (0.84)
PART TIME WORK		-0.0319 (0.09)		0.0416 (0.11)	0.0692 (0.18)
TEAM WORK		0.2420 (2.87)		0.2454 (2.85)	0.2376 (2.75)
PATICIPATION	x_3	0.4847 (3.32)		0.4556 (3.06)	0.4627 (3.09)
PROFIT SHARING		0.1434 (1.36)		0.1008 (0.93)	0.0964 (0.89)
WAGES $*10^{-5}$		0.9297 (3.86)		0.6497 (2.60)	0.6986 (2.79)
SHIFT WORKING			0.4898 (5.04)	0.5479 (5.52)	0.5515 (5.55)
INNOVATION			0.1880 (2.12)	0.1621 (1.82)	0.1563 (1.75)
NEW TECHNOLOGY	x_4		0.1779 (3.88)	0.1966 (4.31)	0.2007 (4.41)
EXPORT QUOTA			0.0076 (3.46)	0.0048 (2.12)	0.0046 (2.02)
MARKET SHARE			-0.0017 (1.27)	-0.0021 (1.60)	-0.0023 (1.69)
SUCCESS			0.3012 (3.15)	0.2547 (2.66)	0.2690 (2.80)
CONSTANT		-0.8584 (4.31)	-0.5797 (3.48)	-1.7027 (6.81)	-1.7261 (6.91)
$R^2_{OLS,g}$		0.4039	0.3723	0.4592	0.4795
R^2_s		0.4066	0.3934	0.4738	
R^2_{MF}		0.2039	0.2105	0.2533	
R^2_{MZ}		0.3987	0.3855	0.4618	
$F_{(1)}$		40.45*	44.41*	31.36*	
$F_{(2)}$		7.36*			
$F_{(3)}$				0.41	
$t_{(1)}$		5.60*			
$t_{(2)}$			6.00*		