Exercício C17.2

i) Comparação das estimativas do LPM e do Probit

Equação 1LPM: estimação LPM

Dependent Variable: APPROVE
Method: Least Squares
Sample (adjusted): 1 1988
Included observations: 1988 after adjustments
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.707792	0.025926	27.30007	0.0000
WHITE	0.200541	0.026866	7.464457	0.0000

R-squared	0.048902	Mean dependent var	0.877264
Adjusted R-squared	0.048424	S.D. dependent var	0.328217
S.E. of regression	0.320172	Akaike info criterion	0.561087
Sum squared resid	203.5846	Schwarz criterion	0.566715
Log likelihood	-555.7200	Hannan-Quinn criter.	0.563154
F-statistic	102.1139	Durbin-Watson stat	1.997242
Prob(F-statistic)	0.000000		

Equação 1probit: estimação Probit

Dependent Variable: APPROVE
Method: ML - Binary Probit (Quadratic hill climbing)
Sample (adjusted): 1 1988
Included observations: 1988 after adjustments
Convergence achieved after 4 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.546946	0.075435	7.250562	0.0000
WHITE	0.783615	0.086714	9.036739	0.0000

McFadden R-squared	0.053274	Mean dependent var	0.877264
S.D. dependent var	0.328217	S.E. of regression	0.320172
Akaike info criterion	0.707023	Sum squared resid	203.5846
Schwarz criterion	0.712652	Log likelihood	-700.7813
Hannan-Quinn criter.	0.709091	Restr. log likelihood	-740.2157
LR statistic	78.86870	Avg. log likelihood	-0.352506
Prob(LR statistic)	0.000000		

Obs with Dep=0	244	Total obs	1988
Obs with Dep=1	1744		

As estimativas obtidas são **pwlpm=0.908** e **pnwlpm=0.708; pwprobit=0.908** e **pnwprobit=0.708**.

ii) Estimação Probit

Dependent Variable: APPROVE
Method: ML - Binary Probit (Quadratic hill climbing)
Sample (adjusted): 1 1988
Included observations: 1971 after adjustments
Convergence achieved after 4 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	2.062327	0.313176	6.585195	0.0000
WHITE	0.520253	0.096959	5.365708	0.0000
HRAT	0.007876	0.006962	1.131394	0.2579
OBRAT	-0.027692	0.006049	-4.577783	0.0000
LOANPRC	-1.011969	0.237240	-4.265601	0.0000
UNEM	-0.036685	0.017481	-2.098594	0.0359
MALE	-0.037001	0.109927	-0.336599	0.7364
MARRIED	0.265747	0.094252	2.819528	0.0048
DEP	-0.049576	0.039057	-1.269304	0.2043
SCH	0.014650	0.095842	0.152852	0.8785
COSIGN	0.086071	0.245751	0.350238	0.7262
CHIST	0.585281	0.095971	6.098492	0.0000
PUBREC	-0.778741	0.126320	-6.164823	0.0000
MORTLAT1	-0.187624	0.253113	-0.741265	0.4585
MORTLAT2	-0.494356	0.326556	-1.513847	0.1301
VR	-0.201062	0.081493	-2.467220	0.0136

McFadden R-squared	0.186602	Mean dependent var	0.876205
S.D. dependent var	0.329431	S.E. of regression	0.299475
Akaike info criterion	0.625338	Sum squared resid	175.3347
Schwarz criterion	0.670686	Log likelihood	-600.2710
Hannan-Quinn criter.	0.642002	Restr. log likelihood	-737.9793
LR statistic	275.4167	Avg. log likelihood	-0.304551
Prob(LR statistic)	0.000000		

Obs with Dep=0	244	Total obs	1971
Obs with Dep=1	1727		

iii) Estimação Logit

Dependent Variable: APPROVE
Method: ML - Binary Logit (Quadratic hill climbing)
Sample (adjusted): 1 1988
Included observations: 1971 after adjustments
Convergence achieved after 4 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	3.801710	0.594707	6.392581	0.0000
WHITE	0.937764	0.172904	5.423604	0.0000
HRAT	0.013263	0.012880	1.029730	0.3031
OBRAT	-0.053034	0.011280	-4.701464	0.0000
LOANPRC	-1.904951	0.460442	-4.137220	0.0000
UNEM	-0.066579	0.032809	-2.029310	0.0424
MALE	-0.066385	0.206429	-0.321588	0.7478

MARRIED	0.503282	0.177998	2.827453	0.0047
DEP	-0.090734	0.073334	-1.237261	0.2160
SCH	0.041229	0.178404	0.231098	0.8172
COSIGN	0.132059	0.446094	0.296034	0.7672
CHIST	1.066577	0.171212	6.229572	0.0000
PUBREC	-1.340665	0.217366	-6.167782	0.0000
MORTLAT1	-0.309882	0.463520	-0.668541	0.5038
MORTLAT2	-0.894675	0.568581	-1.573522	0.1156
VR	-0.349828	0.153725	-2.275672	0.0229

McFadden R-squared	0.186297	Mean dependent var	0.876205
S.D. dependent var	0.329431	S.E. of regression	0.299487
Akaike info criterion	0.625567	Sum squared resid	175.3487
Schwarz criterion	0.670915	Log likelihood	-600.4962
Hannan-Quinn criter.	0.642230	Restr. log likelihood	-737.9793
LR statistic	274.9664	Avg. log likelihood	-0.304666
Prob(LR statistic)	0.000000		

Obs with Dep=0	244	Total obs	1971
Obs with Dep=1	1727		

iv) Efeito parcial médio

Nota: certifique-se que corre o modelo probit da alínea ii) antes de correr o seguinte programa:

```
'Estimativa do efeito parcial médio de white no modelo probit - ex C17-2iv)
series GnW=@cnorm(C(1) + C(3)*HRAT + C(4)*OBRAT + C(5)*LOANPRC + C(6)*UNEM + C(7)*MALE +
C(8)*MARRIED + C(9)*DEP + C(10)*SCH + C(11)*COSIGN + C(12)*CHIST + C(13)*PUBREC +
C(14)*MORTLAT1 + C(15)*MORTLAT2 + C(16)*VR)

series GW=@cnorm(C(1) + C(2) + C(3)*HRAT + C(4)*OBRAT + C(5)*LOANPRC + C(6)*UNEM +
C(7)*MALE + C(8)*MARRIED + C(9)*DEP + C(10)*SCH + C(11)*COSIGN + C(12)*CHIST +
C(13)*PUBREC + C(14)*MORTLAT1 + C(15)*MORTLAT2 + C(16)*VR)

series dG=GW-GnW

scalar epmWprobit=@mean(dG)
```

Nota: certifique-se que corre o modelo logit da alínea iii) antes de correr o seguinte programa:

```
'Estimativa do efeito parcial médio de white no modelo logit - ex C17-2iv)
series GnW=@clogistic(C(1) + C(3)*HRAT + C(4)*OBRAT + C(5)*LOANPRC + C(6)*UNEM + C(7)*MALE +
C(8)*MARRIED + C(9)*DEP + C(10)*SCH + C(11)*COSIGN + C(12)*CHIST + C(13)*PUBREC +
C(14)*MORTLAT1 + C(15)*MORTLAT2 + C(16)*VR)

series GW=@clogistic(C(1) + C(2) + C(3)*HRAT + C(4)*OBRAT + C(5)*LOANPRC + C(6)*UNEM +
C(7)*MALE + C(8)*MARRIED + C(9)*DEP + C(10)*SCH + C(11)*COSIGN + C(12)*CHIST +
C(13)*PUBREC + C(14)*MORTLAT1 + C(15)*MORTLAT2 + C(16)*VR)

series dG=GW-GnW

scalar epmWlogit=@mean(dG)
```

Os resultados obtidos são: **epmWprobit = 0.104224** e **epmWlogit = 0.100871**