Appendix II

Random effects regression model (1)

$$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} ,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 .$$

$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}}$ represents the total consumer surplus extracted in the A and B markets in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg pcsab i.F*B LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression — Number of obs = 3750
Group variable (i): session — Number of groups = 25

R-sq: within = 0.0000 — Obs per group: min = 150
between = 0.4740 — avg = 150.0
overall = 0.2945 — max = 150

Random effects u_i ~ Gaussian — Wald chi2(4) = 18.03
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0012

pcsab	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	.1223976	.0514955	2.38	0.017	.0214683	.2233269
B	.0229242	.0514955	0.45	0.656	-.0780051	.1238535
F*B	.0444726	.0728256	0.61	0.541	-.098263	.1872081
LFC	-.1296805	.0514955	-2.52	0.012	-.2306098	-.0287512
_cons	.5300408	.0364128	14.56	0.000	.458673	.6014086

sigma_u	.08116776	
sigma_e	.07866561	
rho	.51565087	(fraction of variance due to u_i)

Random effects regression model (1)’ with AR(1) disturbance

$$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} ,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 .$$

$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}}$ represents the total consumer surplus extracted in the A and B markets in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar pcsab i.F*B LFC if exclusion!=1 & only150==1, re rhotype(regress)   lbi

RE GLS regression with AR(1) disturbances          Number of obs      =      3750
Group variable (i): session                        Number of groups   =        25

R-sq:  within  = 0.0000                            Obs per group: min =       150
between = 0.4737                                   avg =      150.0
overall = 0.2943                                   max =        150

Wald chi2(5)       =      23.23
corr(u_i, Xb)      = 0 (assumed)                    Prob > chi2        =    0.0003
```

pcsab	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	.1257982	.0455999	2.76	0.006	.0364241	.2151724
B	.0280024	.0455999	0.61	0.539	-.0613718	.1173765
F*B	.038356	.064488	0.59	0.552	-.0880381	.1647501
LFC	-.1315932	.0455999	-2.89	0.004	-.2209673	-.042219
_cons	.5271283	.032244	16.35	0.000	.4639313	.5903254

```
rho_ar          .84837665   (estimated autocorrelation coefficient)
sigma_u         .06879162
sigma_e         .04124926
rho_fov         .73553664   (fraction of variance due to u_i)
theta           .70260329
modified Bhargava et al. Durbin-Watson = .29381298
Baltagi-Wu LBI = .315383
```

Random effects regression model (2)

$$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \text{ ,}$$

$$i = 1,\ldots,10,61,\ldots,70,71,\ldots,75 \qquad j = 31,\ldots,180 \text{ .}$$

$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}}$ represents the total seller surplus extracted in the A and B markets in the ith session and jth period. β_{F}, β_{B}, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term (*F* $*$ *B*). μ_i and $\varepsilon_{\mathrm{ij}}$ are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg ppsab i.F*B LFC if exclusion!=1 & only150==1, re i(session)
```

Random-effects GLS regression	Number of obs = 3750
Group variable (i): session	Number of groups = 25
R-sq: within = 0.0000	Obs per group: min = 150
between = 0.5401	avg = 150.0
overall = 0.3143	max = 150
Random effects u_i ~ Gaussian	Wald chi2(4) = 23.49
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.0001

ppsab	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	-.0783794	.0287151	-2.73	0.006	-.1346599	-.0220988
B	-.003147	.0287151	-0.11	0.913	-.0594275	.0531336
F*B	-.0116228	.0406093	-0.29	0.775	-.0912156	.0679699
LFC	.1051634	.0287151	3.66	0.000	.0488829	.161444
_cons	.1696173	.0203046	8.35	0.000	.129821	.2094137

sigma_u	.04521171	
sigma_e	.05093113	
rho	.44072096	(fraction of variance due to u_i)

Random effects regression model (2)' with AR(1) disturbance

$$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 \,.$$

$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}}$ represents the total seller surplus extracted in the A and B markets in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar ppsab i.F*B LFC if exclusion!=1 & only150==1, re rhotype(regress)  lbi

RE GLS regression with AR(1) disturbances          Number of obs      =     3750
Group variable (i): session                        Number of groups   =       25

R-sq:  within  = 0.0000                            Obs per group: min =      150
between = 0.5401                                   avg =     150.0
overall = 0.3142                                   max =       150

Wald chi2(5)       =      29.04
corr(u_i, Xb)      = 0 (assumed)                   Prob > chi2        =   0.0000
```

ppsab	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	-.0777832	.0255803	-3.04	0.002	-.1279197	-.0276467
B	-.0038669	.0255803	-0.15	0.880	-.0540034	.0462696
F*B	-.0108444	.036176	-0.30	0.764	-.0817481	.0600593
LFC	.1044556	.0255803	4.08	0.000	.0543191	.1545921
_cons	.1696467	.018088	9.38	0.000	.1341948	.2050986

```
rho_ar          .79267518   (estimated autocorrelation coefficient)
sigma_u         .03862671
sigma_e         .03098454
rho_fov         .60847612   (fraction of variance due to u_i)
theta           .70551371
modified Bhargava et al. Durbin-Watson = .40985308
Baltagi-Wu LBI = .42381293
```

Random effects regression model (3)

$$\sum_{\{A,B,AB\}} S_{ij} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij}\,,$$

$$i = 1,\ldots,10,61,\ldots,70,71,\ldots,75 \qquad j = 31,\ldots,180\,.$$

$\sum_{\{A,B,AB\}} S_{ij}$ represents the total system (consumer+seller) surplus extracted in the A and B markets in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term (*F* ∗*B*). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg welfareab i.F*B LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression		Number of obs =	3750
Group variable (i): session		Number of groups =	25
R-sq: within = 0.0000		Obs per group: min =	150
between = 0.3499		avg =	150.0
overall = 0.2059		max =	150
Random effects u_i ~ Gaussian		Wald chi2(4) =	10.76
corr(u_i, X) = 0 (assumed)		Prob > chi2 =	0.0294

welfareab	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	.0440182	.0335394	1.31	0.189	-.0217177	.1097541
B	.0197772	.0335394	0.59	0.555	-.0459587	.0855132
F*B	.0328497	.0474318	0.69	0.489	-.0601149	.1258144
LFC	-.0245171	.0335394	-0.73	0.465	-.090253	.0412189
_cons	.6996581	.0237159	29.50	0.000	.6531758	.7461404

sigma_u	.052877	
sigma_e	.04936402	
rho	.53431923	(fraction of variance due to u_i)

Random effects regression model (3)' with AR(1) disturbance

$$\sum_{\{A,B,AB\}} \mathrm{S}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} ,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 .$$

$\sum_{\{A,B,AB\}} \mathrm{S}_{\mathrm{ij}}$ represents the total system (consumer+seller) surplus extracted in the A and B markets in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

. xi: xtregar welfareab i.F*B LFC if exclusion!=1 & only150==1, re rhotype(regress) lbi

RE GLS regression with AR(1) disturbances   Number of obs = 3750
Group variable (i): session   Number of groups = 25

R-sq: within = 0.0000   Obs per group: min = 150
between = 0.3497   avg = 150.0
overall = 0.2057   max = 150

Wald chi2(5) = 13.67
corr(u_i, Xb) = 0 (assumed)   Prob > chi2 = 0.0178

welfareab	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	.0460753	.0299023	1.54	0.123	-.0125321	.1046826
B	.0217345	.0299023	0.73	0.467	-.0368728	.0803419
F*B	.0304308	.0422882	0.72	0.472	-.0524525	.1133141
LFC	-.0259318	.0299023	-0.87	0.386	-.0845392	.0326755
_cons	.6982701	.0211441	33.02	0.000	.6568284	.7397118

rho_ar .72262601 (estimated autocorrelation coefficient)
sigma_u .04621837
sigma_e .03390123
rho_fov .65018493 (fraction of variance due to u_i)
theta .79236295
modified Bhargava et al. Durbin-Watson = .53872338
Baltagi-Wu LBI = .56613584

Poisson regression model (4)

$$\ln(\sum e_{ij}^{B}) = \beta_F F + \beta_B B + \beta_{FB}(F \times B) + \beta_{LFC} LFC + \alpha_i + \varepsilon_{ij},$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180\,.$$

$\sum e_{ij}^{B}$ represents the number of competitors that simultaneously exist in the B market in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term (*F* ∗*B*). α_i is the session specific constant term and ε_{ij} stands for the observation specific disturbances that is assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

. xi: poisson ecb i.F*B LFC if exclusion!=1 & only150==1, robust cluster(session)

Iteration 0: log pseudo-likelihood = -5439.4773
Iteration 1: log pseudo-likelihood = -5439.4773

Poisson regression Number of obs = 3750
Wald chi2(4) = 24.94
Log pseudo-likelihood = -5439.4773 Prob > chi2 = 0.0001

(standard errors adjusted for clustering on session)

Robust

ecb	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	.1256736	.0849044	1.48	0.139	-.0407359	.2920831
B	-.0907947	.0670515	-1.35	0.176	-.2222133	.0406239
F*B	-.0442219	.1795225	-0.25	0.805	-.3960795	.3076357
LFC	.2253938	.1655375	1.36	0.173	-.0990538	.5498414
_cons	.7657779	.0582581	13.14	0.000	.6515941	.8799616

Random effects regression model (5)

$$p_{ij}^{A} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij},$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180.$$

p_{ij}^{A} represents the transaction price in the A market in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F*B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg pat i.F*B LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression	Number of obs = 3406
Group variable (i): session	Number of groups = 25
R-sq: within = 0.0000	Obs per group: min = 48
between = 0.4548	avg = 136.2
overall = 0.3509	max = 150
Random effects u_i ~ Gaussian	Wald chi2(4) = 16.69
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.0022

pat	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	-9.3541	4.398655	-2.13	0.033	-17.97531	-.7328943
B	1.244901	4.399601	0.28	0.777	-7.378158	9.86796
F*B	-5.732777	6.221324	-0.92	0.357	-17.92635	6.460795
LFC	9.616412	4.400539	2.19	0.029	.991515	18.24131
_cons	88.8	3.110319	28.55	0.000	82.70389	94.89611

sigma_u 6.9450724
sigma_e 4.5231468
rho .70216921 (fraction of variance due to u_i)

Random effects regression model (5)' with AR(1) disturbance

$$p_{ij}^{A} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \, ,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 \, .$$

p_{ij}^{A} represents the transaction price in the A market in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar pat i.F*B LFC if exclusion!=1 & only150==1, re rhotype(regress) lbi

RE GLS regression with AR(1) disturbances        Number of obs      =    3406
Group variable (i): session                      Number of groups   =      25
R-sq:  within  = 0.0000                          Obs per group: min =      48
between = 0.4545                                 avg =     136.2
overall = 0.3483                                 max =       150

Wald chi2(5)      =     21.24
corr(u_i, Xb)     = 0 (assumed)                  Prob > chi2        =  0.0007
theta --------------------
min          5%          median       95%          max
0.7806       0.7990      0.8061       0.8061       0.8061
```

pat	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	-9.477318	3.901793	-2.43	0.015	-17.12469	-1.829944
B	1.315253	3.902611	0.34	0.736	-6.333724	8.96423
F*B	-5.537509	5.518559	-1.00	0.316	-16.35369	5.278668
LFC	9.792445	3.905169	2.51	0.012	2.138454	17.44644
_cons	88.8	2.758984	32.19	0.000	83.39249	94.20751

```
rho_ar        .83410113   (estimated autocorrelation coefficient)
sigma_u       6.0475742
sigma_e       2.5086467
rho_fov       .85318806   (fraction of variance due to u_i)
modified Bhargava et al. Durbin-Watson = .35704084
Baltagi-Wu LBI = .4220723
```

Random effects regression model (6)

$$p_{ij}^{B} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \, ,$$

$$i = 1,\ldots,10,61,\ldots,70,71,\ldots,75 \qquad j = 31,\ldots,180 \, .$$

p_{ij}^{B} represents the transaction price in the B market in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg pbt i.F*B LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression		Number of obs =	3728
Group variable (i): session		Number of groups =	25
R-sq: within = 0.0000		Obs per group: min =	134
between = 0.1252		avg =	149.1
overall = 0.0582		max =	150
Random effects u_i ~ Gaussian		Wald chi2(4) =	2.86
corr(u_i, X) = 0 (assumed)		Prob > chi2 =	0.5814

pbt	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	-1.47868	2.485658	-0.59	0.552	-6.350481	3.393121
B	-1.069705	2.485676	-0.43	0.667	-5.94154	3.80213
F*B	1.797105	3.515336	0.51	0.609	-5.092828	8.687038
LFC	-3.168705	2.485778	-1.27	0.202	-8.040741	1.70333
_cons	31.60021	1.757626	17.98	0.000	28.15533	35.0451

sigma_u	3.9166082	
sigma_e	3.9959881	
rho	.48996892	(fraction of variance due to u_i)

Random effects regression model (6)' with AR(1) disturbance

$$p_{ij}^{B} = \beta_F F + \beta_B B + \beta_{FB} F \times B + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 \,.$$

p_{ij}^{B} represents the transaction price in the B market in the ith session and jth period. β_F, β_B, and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)*, *Bundle (B)*, and *LowFixedCost (LFC)*. β_{FB} is the coefficient for the interaction term (*F* ∗*B*). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar pbt i.F*B LFC if exclusion!=1 & only150==1, re rhotype(regress) lbi

RE GLS regression with AR(1) disturbances          Number of obs      =     3728
Group variable (i): session                        Number of groups   =       25
R-sq:  within  = 0.0000                            Obs per group: min =      134
between = 0.1248                                   avg =     149.1
overall = 0.0582                                   max =       150

Wald chi2(5)      =      3.95
corr(u_i, Xb)     = 0 (assumed)                    Prob > chi2        =   0.5573
theta --------------------
min             5%            median          95%            max
0.6583          0.6613        0.6613          0.6613         0.6613

pbt     Coef.         Std. Err.     Z       P>z            [95% Conf. Interval]
F       -1.555065     2.210907      -0.70   0.482          -5.888364    2.778234
B       -1.30108      2.210911      -0.59   0.556          -5.634386    3.032226
F*B     1.941786      3.126882      0.62    0.535          -4.18679    8.070362
LFC     -3.23962      2.21117       -1.47   0.143          -7.573434    1.094195
_cons   31.81133      1.563348      20.35   0.000          28.74722    34.87543

rho_ar          .86872035   (estimated autocorrelation coefficient)
sigma_u         3.2868797
sigma_e         1.9843575
rho_fov         .7328806   (fraction of variance due to u_i)
modified Bhargava et al. Durbin-Watson = .25555555
Baltagi-Wu LBI = .29695781
```

Random effects regression model (7)

$$p_{ij}^{AB} = \beta_F F + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij},$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180.$$

p_{ij}^{AB} represents the bundle transaction price in the ith session and jth period. β_F and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)* and *LowFixedCost (LFC)*. μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pbundlet F LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression              Number of obs      =     2028
Group variable (i): session                Number of groups   =       15

R-sq:  within  = 0.0000                    Obs per group: min =       52
between = 0.4631                           avg =     135.2
overall = 0.2974                           max =       150

Random effects u_i ~ Gaussian              Wald chi2(2)       =    10.35
corr(u_i, X)       = 0 (assumed)           Prob > chi2        =   0.0056
```

pbundlet	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	-12.64868	4.637562	-2.73	0.006	-21.73814	-3.559229
LFC	-.5326375	4.634957	-0.11	0.909	-9.616987	8.551712
_cons	117.3337	3.280256	35.77	0.000	110.9045	123.7629

sigma_u	7.3047471	
sigma_e	6.8797972	
rho	.52993179	(fraction of variance due to u_i)

Random effects regression model (7)' with AR(1) disturbance

$$p_{ij}^{AB} = \beta_F F + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij},$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 .$$

p_{ij}^{AB} represents the bundle transaction price in the ith session and jth period. β_F and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)* and *LowFixedCost (LFC)*. μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar pbundlet F LFC if exclusion!=1 & only150==1, re rhotype(regress)     lbi

RE GLS regression with AR(1) disturbances           Number of obs      =      2028
Group variable (i): session                          Number of groups   =        15

R-sq:  within  = 0.0000                              Obs per group: min =        52
between = 0.4629                                     avg =     135.2
overall = 0.2979                                     max =       150

Wald chi2(3)       =     12.61
corr(u_i, Xb)      = 0 (assumed)                     Prob > chi2        =    0.0056
theta --------------------
min            5%             median         95%            max
0.6205         0.6393         0.6509         0.6509         0.6509

pbundlet       Coef.          Std. Err.      Z       P>z          [95% Conf. Interval]
F              -12.53081      4.110996       -3.05   0.002        -20.58822    -4.47341
LFC            -.2248745      4.107196       -0.05   0.956        -8.27483     7.825081
_cons          117.1979       2.90871        40.29   0.000        111.497      122.8989

rho_ar         .8917204   (estimated autocorrelation coefficient)
sigma_u        6.0746772
sigma_e        3.1618639
rho_fov        .78683202   (fraction of variance due to u_i)
modified Bhargava et al. Durbin-Watson = .23751311
Baltagi-Wu LBI = .30366622
```

Random effects regression model (8)

$$CS_{ij}^{AB} = \beta_F F + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 \,.$$

CS_{ij}^{AB} represents the surplus that consumers extract from the bundle in the ith session and jth period. β_F and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)* and *LowFixedCost (LFC)*. μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg pcsbundle F LFC if exclusion!=1 & only150==1, re i(session)

Random-effects GLS regression	Number of obs = 3750
Group variable (i): session	Number of groups = 25
R-sq: within = 0.0000	Obs per group: min = 150
between = 0.1557	avg = 150.0
overall = 0.1186	max = 150
Random effects u_i ~ Gaussian	Wald chi2(2) = 4.06
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.1315

pcsbundle	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	.0336146	.0885876	0.38	0.704	-.1400139	.207243
LFC	.1791379	.1084972	1.65	0.099	-.0335127	.3917885
_cons	.1673755	.0626409	2.67	0.008	.0446016	.2901494

sigma_u	.19787119	
sigma_e	.11344136	
rho	.75262478	(fraction of variance due to u_i)

Random effects regression model (8)' with AR(1) disturbance

$$CS_{ij}^{AB} = \beta_F F + \beta_{LFC} LFC + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 1,...,10,61,...,70,71,...,75 \qquad j = 31,...,180 \,.$$

CS_{ij}^{AB} represents the surplus that consumers extract from the bundle in the ith session and jth period. β_F and β_{LFC} are the coefficients for the treatment variables, *Fringe (F)* and *LowFixedCost (LFC)*. μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively. μ_i is assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and ε_{ij} is assumed to follow an AR(1) process.

```
. xi: xtregar pcsbundle F LFC if exclusion!=1 & only150==1, re rhotype(regress)  lbi

RE GLS regression with AR(1) disturbances         Number of obs      =     3750
Group variable (i): session                       Number of groups   =       25

R-sq:  within  = 0.0000                           Obs per group: min =      150
between = 0.1557                                  avg =     150.0
overall = 0.1186                                  max =       150

Wald chi2(3)       =      4.56
corr(u_i, Xb)      = 0 (assumed)                  Prob > chi2        =   0.2066
```

pcsbundle	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	.033259	.0831433	0.40	0.689	-.1296988	.1962168
LFC	.1784656	.1018293	1.75	0.080	-.0211161	.3780473
_cons	.1680791	.0587912	2.86	0.004	.0528506	.2833077

```
rho_ar          .67447998   (estimated autocorrelation coefficient)
sigma_u         .18468721
sigma_e         .08351241
rho_fov         .83024108   (fraction of variance due to u_i)
theta           .88880847
modified Bhargava et al. Durbin-Watson = .6396508
Baltagi-Wu LBI = .6606788
```

Poisson regression model (9)

$$\ln(\sum e_{ij}^{B}) = \beta_F F + \beta_B B + \beta_{FB}(F \times B) + \alpha_i + \varepsilon_{ij},$$

$$i = 41,...,60 \qquad j = 31,...,180 .$$

$\sum e_{ij}^{B}$ represents the number of competitors that simultaneously exist in the B market in the ith session and jth period. β_F and β_B are the coefficients for the treatment variables, *Fringe (F)* and *Bundle (B)*. β_{FB} is the coefficient for the interaction term ($F * B$). α_i is the session specific constant term and ε_{ij} stands for the observation specific disturbances that is assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

```
. xi: poisson fcb i.F*B if exclusion==1 & only150==1, robust cluster(session)

Iteration 0:   log pseudo-likelihood = -4868.6905
Iteration 1:   log pseudo-likelihood = -4868.6902

Poisson regression                          Number of obs   =      3600
Wald chi2(3)    =      22.26
Log pseudo-likelihood = -4868.6902          Prob > chi2     =    0.0001

(standard errors adjusted for clustering on session)
```

Robust

ecb	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	-.0337355	.0783676	-0.43	0.667	-.1873332	.1198622
B	-.6813126	.1587069	-4.29	0.000	-.9923725	-.3702527
F*B	-.1674004	.3102368	-0.54	0.589	-.7754532	.4406525
_cons	.9130856	.0452432	20.18	0.000	.8244106	1.001761

Random effects regression model (10)

$$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + (\alpha + \mu_i) + \varepsilon_{ij}\ ,$$

$$i = 41,\ldots,60 \qquad j = 31,\ldots,180\ .$$

$\sum_{\{A,B,AB\}} \mathrm{CS}_{\mathrm{ij}}$ represents the total consumer surplus extracted in the A and B markets in the ith session and jth period. β_F and β_B are the coefficients for the treatment variables, *Fringe (F)* and *Bundle (B)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pcsab i.F*B if exclusion==1 & only150==1, re i(session)

Random-effects GLS regression              Number of obs      =     3600
Group variable (i): session                Number of groups   =       20

R-sq:  within  = 0.0574                    Obs per group: min =      150
between = 0.0629                           avg =     180.0
overall = 0.0323                           max =       300

Random effects u_i ~ Gaussian              Wald chi2(3)       =   217.60
corr(u_i, X)       = 0 (assumed)           Prob > chi2        =   0.0000
```

pcsab	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
F	.0071681	.0419886	0.17	0.864	-.075128	.0894642
B	.0366276	.0363996	1.01	0.314	-.0347144	.1079696
F*B	.0615919	.0422516	1.46	0.145	-.0212197	.1444034
_cons	.5689451	.0296904	19.16	0.000	.5107529	.6271372

```
sigma_u        .06600915
sigma_e        .08175953
rho            .39460925   (fraction of variance due to u_i)
```

Random effects regression model (11)

$$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + (\alpha + \mu_i) + \varepsilon_{ij} \, ,$$

$$i = 41,...,60 \qquad j = 31,...,180 \, .$$

$\sum_{\{A,B,AB\}} \mathrm{PS}_{\mathrm{ij}}$ represents the total seller surplus extracted in the A and B markets in the ith session and jth period. β_F and β_B are the coefficients for the treatment variables, *Fringe (F)* and *Bundle (B)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg ppsab i.F*B if exclusion==1 & only150==1, re i(session)

Random-effects GLS regression	Number of obs = 3600
Group variable (i): session	Number of groups = 20
R-sq: within = 0.0535	Obs per group: min = 150
between = 0.1465	avg = 180.0
overall = 0.0654	max = 300
Random effects u_i ~ Gaussian	Wald chi2(3) = 204.48
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.0000

ppsab	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	-.0173579	.0274303	-0.63	0.527	-.0711204	.0364045
B	-.039941	.0237806	-1.68	0.093	-.08655	.0066681
F*B	-.0271248	.0276122	-0.98	0.326	-.0812437	.026994
_cons	.2658868	.0193962	13.71	0.000	.227871	.3039026

sigma_u	.04310991	
sigma_e	.05496905	
rho	.38082802	(fraction of variance due to u_i)

Random effects regression model (12)

$$\sum_{\{A,B,AB\}} \mathrm{S}_{\mathrm{ij}} = \beta_F F + \beta_B B + \beta_{FB} F \times B + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 41,...,60 \qquad j = 31,...,180\,.$$

$\sum_{\{A,B,AB\}} \mathrm{S}_{\mathrm{ij}}$ represents the total system (consumer + seller) surplus extracted in the A and B markets in the ith session and jth period. β_F and β_B are the coefficients for the treatment variables, *Fringe (F)* and *Bundle (B)*. β_{FB} is the coefficient for the interaction term ($F * B$). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

. xi: xtreg welfareab i.F*B if exclusion==1 & only150==1, re i(session)

Random-effects GLS regression	Number of obs = 3600
Group variable (i): session	Number of groups = 20
R-sq: within = 0.0205	Obs per group: min = 150
between = 0.0006	avg = 180.0
overall = 0.0024	max = 300
Random effects u_i ~ Gaussian	Wald chi2(3) = 73.95
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.0000

welfareab	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	-.0101899	.0230216	-0.44	0.658	-.0553113	.0349316
B	-.0032878	.0199612	-0.16	0.869	-.042411	.0358354
F*B	.0343648	.0231942	1.48	0.138	-.0110949	.0798246
_cons	.8348318	.0162787	51.28	0.000	.8029262	.8667375

sigma_u	.03617177	
sigma_e	.04911964	
rho	.35161217	(fraction of variance due to u_i)

Random effects regression model (13)

$$p_{ij}^{A} = \beta_F F + \beta_B B + \beta_{FB} F \times B + (\alpha + \mu_i) + \varepsilon_{ij} \,,$$

$$i = 41,\ldots,60 \qquad j = 31,\ldots,180 \,.$$

p_{ij}^{A} represents the transaction price in the A market in the ith session and jth period. β_F and β_B are the coefficients for the treatment variables, *Fringe (F)* and *Bundle (B)*. β_{FB} is the coefficient for the interaction term (*F* ∗*B*). μ_i and ε_{ij} are the session specific and observation specific random disturbances respectively, and both of them are assumed to be independent and normally distributed, $N(0,\sigma_\mu)$ and $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pat i.F*B if exclusion==1  & only150==1, re i(session)

Random-effects GLS regression              Number of obs      =    3340
Group variable (i): session                Number of groups   =      20

R-sq:  within  = 0.1664                    Obs per group: min =      91
between = 0.0910                           avg =    167.0
overall = 0.1006                           max =      295

Random effects u_i ~ Gaussian              Wald chi2(3)      =   662.53
corr(u_i, X)       = 0 (assumed)           Prob > chi2       =   0.0000
```

pat	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
F	-2.726653	5.305568	-0.51	0.607	-13.12538	7.67207
B	-3.777758	4.598273	-0.82	0.411	-12.79021	5.234693
F*B	-7.604432	5.320818	-1.43	0.153	-18.03304	2.82418
_cons	87.928	3.751603	23.44	0.000	80.57499	95.28101

```
sigma_u      8.3718671
sigma_e      5.8627184
rho          .67095931   (fraction  of variance due to u_i)
```

Fixed Effects Regression (14)

$$p_{ij}^{A} = \beta_F F + \alpha_i + \varepsilon_{ij}\,,$$

$$i = 41,\ldots,60 \qquad j = 31,\ldots,180\,.$$

p_{ij}^{A} represents the transaction price in the A market in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pat F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression          Number of obs      =    3340
Group variable (i): session                Number of groups   =      20

R-sq:  within  = 0.1664                    Obs per group: min =      91
between = 0.0008                           avg =    167.0
overall = 0.0146                           max =      295

F(1,3319)         =    662.71
corr(u_i, Xb)  = -0.4453                   Prob > F           =    0.0000

pat     Coef.        Std. Err.    T        P>t        [95% Conf. Interval]
F       -10.37971    .403202      -25.74   0.000      -11.17026   -9.589163
_cons   87.79925     .223316      393.16   0.000      87.36139     88.2371

sigma_u      9.7742698
sigma_e      5.8627184
rho          .73541648   (fraction of variance due to u_i)

F test that all u_i=0:   F(19, 3319) =   327.96         Prob > F = 0.0000
```

Fixed Effects Regression (15)

$$p_{ij}^{B} = \beta_F F + \alpha_i + \varepsilon_{ij} ,$$

$$i = 41,...,60 \qquad j = 31,...,180 .$$

p_{ij}^{B} represents the transaction price in the B market in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pbt F if exclusion==1 & only150==1, fe i(session)
```

Fixed-effects (within) regression		Number of obs =	2993
Group variable (i): session		Number of groups =	20
R-sq: within = 0.1008		Obs per group: min =	29
between = 0.0013		avg =	149.7
overall = 0.0435		max =	271
F(1,2972) =	333.20		
corr(u_i, Xb) = -0.5584		Prob > F =	0.0000

pbt	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
F	-11.04016	.6048112	-18.25	0.000	-12.22605	-9.854264
_cons	36.97768	.315397	117.24	0.000	36.35926	37.5961

sigma_u	7.6404119	
sigma_e	8.1440821	
rho	.46812328	(fraction of variance due to u_i)

F test that all u_i=0: F(19, 2972) = 62.56 Prob > F = 0.0000

Fixed Effects Regression (16)

$$p_{ij}^{AB} = \beta_F F + \alpha_i + \varepsilon_{ij} ,$$

$$i = 41,...,60 \qquad j = 31,...,180 .$$

p_{ij}^{AB} represents the bundle transaction price in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pbundlet F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression               Number of obs      =     1883
Group variable (i): session                     Number of groups   =       10

R-sq:  within  = 0.0371                         Obs per group: min =       27
between = 0.1694                                avg =     188.3
overall = 0.0001                                max =       300

F(1,1872)        =     72.21
corr(u_i, Xb)  = -0.2491                        Prob > F          =    0.0000

pbundlet       Coef.          Std. Err.      T        P>t          [95% Conf. Interval]
F              -9.431888      1.109947       -8.50    0.000        -11.60875   -7.255024
_cons          121.0905       .6726791       180.01   0.000        119.7713    122.4098

sigma_u        22.378991
sigma_e        18.768965
rho            .58706271   (fraction of variance due to u_i)

F test that all u_i=0:    F(9, 1872) =   176.50          Prob > F = 0.0000
```

Fixed Effects Regression (17)

$$\sum_{\{A,B,AB\}} CS_{ij} = \beta_F F + \alpha_i + \varepsilon_{ij} \, ,$$

$$i = 41,...,60 \qquad j = 31,...,180 \, .$$

$\sum_{\{A,B,AB\}} CS_{ij}$ represents the total consumer surplus extracted in the A and B markets in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

. xi: xtreg pcsab F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression		Number of obs =	3600
Group variable (i): session		Number of groups =	20
R-sq: within = 0.0574		Obs per group: min =	150
between = 0.0286		avg =	180.0
overall = 0.0006		max =	300
F(1,3579) =	218.08		
corr(u_i, Xb) = -0.4044		Prob > F =	0.0000

pcsab	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
F	.0697092	.0047204	14.77	0.000	.0604543	.0789642
_cons	.5671508	.0025569	221.81	0.000	.5621377	.5721638

sigma_u	.08222392	
sigma_e	.08175953	
rho	.50283193	(fraction of variance due to u_i)

F test that all u_i=0: F(19, 3579) = 148.92 Prob > F = 0.0000

Fixed Effects Regression (18)

$$\sum_{\{A,B,AB\}} PS_{ij} = \beta_F F + \alpha_i + \varepsilon_{ij} ,$$

$$i = 41,...,60 \qquad j = 31,...,180 .$$

$\sum_{\{A,B,AB\}} PS_{ij}$ represents the total seller surplus extracted in the A and B markets in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

. xi: xtreg ppsab F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression	Number of obs = 3600
Group variable (i): session	Number of groups = 20
R-sq: within = 0.0535	Obs per group: min = 150
between = 0.0091	avg = 180.0
overall = 0.0031	max = 300
F(1,3579) = 202.26	
corr(u_i, Xb) = -0.3429	Prob > F = 0.0000

ppsab	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
F	-.0451347	.0031736	-14.22	0.000	-.051357	-.0389124
_cons	.2537463	.0017191	147.61	0.000	.2503759	.2571168

sigma_u	.05479459	
sigma_e	.05496905	
rho	.49841059	(fraction of variance due to u_i)

F test that all u_i=0: F(19, 3579) = 158.53 Prob > F = 0.0000

Fixed Effects Regression (19)

$$\sum_{\{A,B,AB\}} S_{ij} = \beta_F F + \alpha_i + \varepsilon_{ij},$$

$$i = 41,\ldots,60 \qquad j = 31,\ldots,180 .$$

$\sum_{\{A,B,AB\}} S_{ij}$ represents the total system (consumer + seller) surplus extracted in the A and B markets in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

. xi: xtreg welfareab F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression		Number of obs =	3600
Group variable (i): session		Number of groups =	20
R-sq: within = 0.0205		Obs per group: min =	150
between = 0.0442		avg =	180.0
overall = 0.0006		max =	300
F(1,3579) =	75.09		
corr(u_i, Xb) =	-0.3789	Prob > F =	0.0000

welfareab	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
F	.0245746	.0028359	8.67	0.000	.0190144	.0301347
_cons	.8208971	.0015361	534.39	0.000	.8178853	.8239089

sigma_u	.03859872	
sigma_e	.04911964	
rho	.38176108	(fraction of variance due to u_i)

F test that all u_i=0: F(19, 3579) = 87.84 Prob > F = 0.0000

Fixed Effects Regression (20)

$$CS_{ij}^{AB} = \beta_F F + \alpha_i + \varepsilon_{ij} \,,$$

$$i = 41,\ldots,60 \qquad j = 31,\ldots,180 \,.$$

CS_{ij}^{AB} represents the surplus that consumers extract from the bundle in the ith session and jth period. β_F represents the coefficient for the *Fringe (F)* treatment variable. α_i is the session specific constant term. ε_{ij} is the observation specific disturbance assumed to be independent and normally distributed, $N(0,\sigma_\varepsilon)$.

```
. xi: xtreg pcsbundle F if exclusion==1 & only150==1, fe i(session)

Fixed-effects (within) regression            Number of obs      =     3600
Group variable (i): session                  Number of groups   =       20

R-sq:  within  = 0.0000                      Obs per group: min =      150
between = 0.0009                             avg =     180.0
overall = 0.0010                             max =       300

F(1,3579)          =      0.07
corr(u_i, Xb)  = 0.0321                      Prob > F           =   0.7927
```

pcsbundle	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
F	.0020885	.0079458	0.26	0.793	-.0134901	.0176672
_cons	.2609179	.0043039	60.62	0.000	.2524794	.2693563

```
sigma_u        .25617628
sigma_e        .13762445
rho            .77602919   (fraction of variance due to u_i)

F test that all u_i=0:    F(19, 3579) =   611.44         Prob > F = 0.0000
```