WEB APPENDIX

Sales Effects of Attention to Feature Advertisements: A Bayesian Mediation Analysis

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Sample WinBUGS Program for a Mediation Analysis with One X-Variable,
One Control Variable and Endogeneity of the Mediator

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# Bayesian Mediation model with endogeneity of the mediator
# Example program for one x-variable and one control variable
# Initial values for parameters and data should be read from separate files
# Here:
#       N is total number of observations
#       y[.] is dependent  variable (Y)
#       m[.] is the (endogenous) mediator (M)
#       x[.,1] is the possibly mediated regressor (X)
#       z[.,1] is a control variable
# Output: alpha, beta, gamma, lambda, rho, tau p, zeta, sigma

model {
    for (i in 1:N) {
    mu.y[i] <- beta[1]+beta[2]*mu.m[i]+beta[3]*z[i,1]+gamma*x[i,1]+rho*(m[i]-mu.m[i])
    mu.m[i] <- alpha*x[i,1]+lambda[ V[i] ]
        y[i] ~ dnorm(mu.y[i],xsi[1])          # Distribution of Y
       m[i] ~ dnorm(mu.m[i],xsi[2])           # Distribution of M
        V[i] ~ dcat(p[])                      # Latent discrete instruments
                    }

p[1] ~ dbeta(1,1)                             # Prior for the latent instrument probabilities
p[2]<-1-p[1]

lambda[1] ~ dnorm(0, 0.0001)                  # Distribution of the latent instrument coefficients
lambda[2] <-lambda[1] + nu
       nu ~ dnorm(0, 0.0001)I(0,)

for (q in 1:3) { beta[q] ~ dnorm(0.0, 0.0001) } # Priors for coefficients in the Y-regression
alpha ~ dnorm(0.0, 0.0001)                       # Prior for the coefficient of X in the M-
regression
gamma ~ dnorm(0.0, 0.0001)                      # Priors for indirect effect of X in the Y-regression

rho ~ dnorm(0.0, 0.0001)                          # Prior for the residual Y-M covariance
for (q in 1:2) { xsi[q] ~ dgamma(0.001,0.001)} # Prior for precision of the errors in Y and M
for (q in 1:2) { sigma[q] <- sqrt(1/xsi[q])}      # Residual SD Y and M

zeta<-beta[2]*alpha                               # Indirect effect of X on Y
tau<-zeta+beta[3]                                 # Total effect of X on Y
```

}