

Programs and Data for Tables in Section 4.3 of  
“Identification and Estimation of Sequential Stochastic Bargaining Models”

(by Antonio Merlo and Xun Tang)

## 1. Data and Variables Used

The data used for producing Tables 1-4 is presented in Matlab format under the file name *BG\_Data.mat*. The key variables that are used in our analyses in Section 4.3 are: total liquidation values (*LQual*), total claim of the assets (*tcl\_cla*). The normalized cake sizes (i.e. the ration between liquidation values and the total claim of assets from both stock and debt owners) are reported in *Cake*. It also reports the discrete state variable (*States*) which are defined using the relative movements of interests and stock price index in each period of six months. Details of definition of these variables and the description of the source of data are included in Section 4.3. Table I contains descriptive statistics for *LQual*, *tcl\_cla* and *Cake*.

## 2. Main Programs

*MT\_Est.m*:

This is the main estimation program. It reports both point and interval estimates. It calls *EstCakeNew.m* for producing the point estimates for cake sizes in Table III, and calls *BS\_EstCakeNew.m* for producing the *bootstrap confidence intervals* for cake sizes in Table III. It also reports the results for testing the null that probability for agreement is higher than 50% for each one of the four possible states (i.e. the  $\hat{p}$ 's and p-values in Table II) in the matrix *table\_output*.

*EstCakeNew.m*:

It takes as inputs the variables *Cake* and *States* in *BG\_Data.mat*. It first decides which of the four possible states belong to  $\Omega_X^+$  (i.e. set of states with agreement probability greater than 50%) using a one-sided t-test. With this decision made, it then applies the estimator proposed in Section 4.2. The point estimates  $\hat{c}$  are reported as *c\_hat* and the sample cross-tabulation of states and dummy for agreements are reported in *table\_out*, which in turn is used for estimating the sample proportion in the second column in Table II and the p-value for the one-sided t-test in the third column of Table II.

*BS\_EstCakeNew.m*:

This program uses the bootstrap samples drawn in the parent script *MT\_Est.m*, and the estimated set  $\hat{\Omega}_X^+$  produced by *EstCakeNew.m*. It applies the estimator for

cake sizes to the bootstrap sample, while taking the decisions made about  $\hat{\Omega}_X^+$  as given. This program is run repeated for 500 times. The bootstrap confidence intervals in the last columns of Table III and Table IV are then reported as the intervals between the 5th and the 95th percentiles among all point estimates produced by these 500 bootstrap replications.