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Monte Carlo results of root-N consistent estimators for the dynamic fixed effects logit model with neither explanatory variables nor time dummies

by

Yoshitsugu Kitazawa
Faculty of Economics
Kyushu Sangyo University

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Yoshitsugu Kitazawa**

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Abstract

This paper shows some Monte Carlo results of root-N consistent estimators for the dynamic fixed effects logit model with neither explanatory variables nor time dummies.
Keywords: dynamic fixed effects logit model with neither explanatory variables nor time dummies; root-N consistent GMM estimators; Monte Carlo
JEL classification: C23; C25

1 Introduction

This paper shows some Monte Carlo results of root-N consistent estimators for the dynamic fixed effects logit model with neither explanatory variables nor time dummies. The results are composed of details and additions to those shown in Kitazawa (2013). The root-N consistent GMM estimators to be investigated in the Monte Carlo experiments are constructed using the moment conditions proposed by Kitazawa (2013). In section 2, the first-order condition of the CMLE (conditional maximum likelihood estimator) proposed by Chamberlain (1985) is correctly rewritten by using the moment conditions above.

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** Faculty of Economics, Kyushu Sangyo University, 3-1 Matsukadai 2-chome, Higashi-ku, Fukuoka, 813-8503, Japan. E-mail: kitazawa@ip.kyusan-u.ac.jp

2 Models and estimations

Kitazawa (2013) proposes two transformations of the simple dynamic fixed effects logit model. They are linear panel data models with fixed effects being additive. Therefore, we construct the moment conditions linear for a parameter of interest and then can conduct linear estimations of the parameter using GMM. The resulting estimators are root-N consistent.

Throughout the paper, subscripts i and t denote the individual and the time period, respectively. It is assumed that the number of individuals $N \to \infty$, while the number of time periods T is fixed.

The simple dynamic fixed effects logit model is specified as follows:

$$y_{it} = \frac{\exp\left(\eta_i + \gamma\, y_{i,t-1}\right)}{1+\exp\left(\eta_i + \gamma\, y_{i,t-1}\right)} + v_{it}, \qquad \text{for } 2 \le t \le T, \tag{2.1}$$

where y_{it} is the binary dependent variable for i at t, η_i is the fixed effect for i, γ is a parameter of interest, and the disturbance for i at t satisfies the following relationship with v_{i1} being empty and $v_i^{t-1} = (v_{i1}, \ldots, v_{i,t-1})$:

$$\mathrm{E}[v_{it} \mid \eta_i, y_{i1}, v_i^{t-1}] = 0. \tag{2.2}$$

The right side first term of (2.1) is the probability with which y_{it} takes one.

Kitazawa (2013) proposed two types of moment conditions for this specification: those based on g-form and h-form.

Standard moment conditions based on g-form

With $u_{it} = y_{it} - \delta y_{i,t-1}(1-y_{it})y_{i,t+1}$,

$$\mathrm{E}[\Delta u_{it}] = 0, \qquad \text{for } 3 \le t \le T-1, \tag{2.3}$$

$$\mathrm{E}[y_{is}\Delta u_{it}] = 0, \qquad \text{for } 1 \le s \le t-2;\ 3 \le t \le T-1. \tag{2.4}$$

Standard moment conditions based on h-form

With $\upsilon_{it} = y_{it} + \delta(1-y_{i,t-1})y_{it}(1-y_{i,t+1})$,

$$\mathrm{E}[\Delta \upsilon_{it}] = 0, \qquad \text{for } 3 \le t \le T-1, \tag{2.5}$$

$$\mathrm{E}[y_{is}\Delta \upsilon_{it}] = 0, \qquad \text{for } 1 \le s \le t-2;\ 3 \le t \le T-1. \tag{2.6}$$

Stationarity moment conditions based on g-form

$$\mathrm{E}[\Delta y_{i,t-1} u_{it}] = 0, \qquad \text{for } 3 \le t \le T-1, \tag{2.7}$$

Stationarity moment conditions based on h-form

$$\mathrm{E}[\Delta y_{i,t-1} \upsilon_{it}] = 0, \qquad \text{for } 3 \le t \le T-1. \tag{2.8}$$

The operator Δ is the first-differencing operator such that $\Delta u_{it} = u_{it} - u_{i,t-1}$, $\Delta \upsilon_{it} = \upsilon_{it} - \upsilon_{i,t-1}$, and $\Delta y_{it} = y_{it} - y_{i,t-1}$. The parameter to be linearly estimated is δ, where $\delta = \exp(\gamma) - 1$.

Further, the first-order conditions of the CMLE for (2.1) using four time periods are written as follows using the standard moment conditions based on g-form and h-form (See Appendix I for proof):[1]

First-order conditions of the CMLE

$$\mathrm{E}[(1 - y_{i,t-2})\Delta u_{it} - y_{i,t-2}\Delta \upsilon_{it} + (y_{i,t+1} + y_{i,t-2} - 1)\Delta y_{it}] = 0, \qquad \text{for } 3 \le t \le T-1. \tag{2.9}$$

[1] The moment conditions (2.4.3) and (2.4.4) presented in Kitazawa (2013) do not precisely express the first-order conditions.

3 Monte Carlo

In this section, some Monte Carlo experiments are carried out for corroborating the root-N rate convergence of the estimators presented in previous section. In the estimations, the instruments are curtailed for the transformations, with the aim of enhancing the accuracy and precision of the estimators in small sample (see Bound et al., 1995, Staiger and Stock, 1997, and Mehrhoff, 2009, etc.).[2] The experiments are implemented by using the econometric software TSP version 5.1 (see Hall and Cummins, 2009).

The DGP (Data Generating Process) is as follows:

$$y_{it} = \begin{cases} 1 & \text{if } p(\eta_i, y_{i,t-1}) > \zeta_{it} \\ 0 & \text{otherwise} \end{cases},$$

$$y_{i1} = \begin{cases} 1 & \text{if } q(\eta_i) > \zeta_{i1} \\ 0 & \text{otherwise} \end{cases},$$

$$p(\eta_i, y_{i,t-1}) = \exp(\eta_i + \gamma y_{i,t-1}) / (1 + \exp(\eta_i + \gamma y_{i,t-1})),$$

$$q(\eta_i) = 1 / (1 + (1 + \exp(\eta_i)) / (\exp(\eta_i)(1 + \exp(\eta_i + \gamma)))),$$

$$\zeta_{it} \sim \mathrm{U}(0,1); \ \eta_i \sim N(0, \sigma_\eta^2).$$

In the DGP, values are set to the parameters γ and σ_η^2. The experiments are carried out with the cross-sectional sizes $N = 250$, 500, 750, 1000, 10000 and 100000, the numbers of time periods $T = 4$ and 8, and the number of replications $R_N = 2500$.

The GMM estimators to be investigated use the following moment conditions constructed from the conditional moment conditions based on g-form and h-form:

Curtailed standard moment conditions based on g-form

$$\mathrm{E}[\Delta u_{it}] = 0, \quad \text{for } 3 \le t \le T-1, \tag{3.1}$$

$$\mathrm{E}[y_{is} \Delta u_{it}] = 0, \quad \text{for } 3 \le t \le T-1. \tag{3.2}$$

[2] However, no dramatic improvement of the accuracy and precision seems to be found for the cases of the curtailed instruments, compared with those using the full set of valid dependent variables as the instruments for the transformations. Further, it is inferred that the GMM estimators using the curtailed instruments set are asymptotically less efficient than those using the full set, judging from the comparison of the former results with the latter ones when $N = 100,000$. See the Monte Carlo Results Supplement to this paper for the results of the latter cases, which is available at: **http://www.ip.kyusan-u.ac.jp/J/kitazawa/CONF/kkkk2014/mcrs_rootndfeln.pdf**

Curtailed standard moment conditions based on h-form

$$\mathrm{E}[\Delta \upsilon_{it}] = 0, \qquad \text{for } 3 \le t \le T-1, \tag{3.3}$$

$$\mathrm{E}[y_{is}\Delta \upsilon_{it}] = 0, \qquad \text{for } 3 \le t \le T-1. \tag{3.4}$$

Stationarity moment conditions based on g-form

$$\mathrm{E}[\Delta y_{i,t-1} u_{it}] = 0, \qquad \text{for } 3 \le t \le T-1, \tag{3.5}$$

Stationarity moment conditions based on h-form

$$\mathrm{E}[\Delta y_{i,t-1} \upsilon_{it}] = 0, \qquad \text{for } 3 \le t \le T-1. \tag{3.6}$$

The GMM estimators to be investigated are as follows:

GMM(g-STD) estimator

which uses the moment conditions (3.1) and (3.2).

GMM(g-SYS) estimator

which uses the moment conditions (3.1), (3.2), and (3.5).

GMM(h-STD) estimator

which uses the moment conditions (3.3) and (3.4).

GMM(h-SYS) estimator

which uses the moment conditions (3.3), (3.4), and (3.6).

GMM(FOC-o) estimator

which uses a combination of the standard moment conditions based on g-form and h-form: $\mathrm{E}[(1-y_{i,t-2})\Delta u_{it} - y_{i,t-2}\Delta \upsilon_{it}] = 0$.

GMM(FOC-s) estimator

which uses a combination of the stationarity moment conditions based on g-form and h-form: $\mathrm{E}[\Delta y_{i,t-1}(u_{it} + \upsilon_{it})] = 0$.

GMM(FOC-c) estimator

which uses the first-order condition of the CMLE:

$$\mathrm{E}[(1-y_{i,t-2})\Delta u_{it} - y_{i,t-2}\Delta \upsilon_{it} + (y_{i,t+1} + y_{i,t-2} - 1)\Delta y_{it}] = 0.$$

The parameters configured in Simulations (aa) – (cc) are as follows, where the data of y_{it} are more persistent as values of γ are larger and they are more dispersed as values of σ_η^2 are larger:

In Simulation (aa)

$\gamma = 0.5$, $\sigma_\eta^2 = 0.5$.

In Simulation (ab)

$\gamma = 0.5$, $\sigma_\eta^2 = 1.0$.

In Simulation (ac)

$\gamma = 0.5$, $\sigma_\eta^2 = 1.5$.

In Simulation (ba)

$\gamma = 1.5$, $\sigma_\eta^2 = 0.5$.

In Simulation (bb)

$\gamma = 1.5$, $\sigma_\eta^2 = 1.0$.

In Simulation (bc)

$\gamma = 1.5$, $\sigma_\eta^2 = 1.5$.

In Simulation (ca)

$\gamma = 2.5$, $\sigma_\eta^2 = 0.5$.

In Simulation (cb)

$\gamma = 2.5$, $\sigma_\eta^2 = 1.0$.

In Simulation (cc)

$\gamma = 2.5$, $\sigma_\eta^2 = 1.5$.

Tables aa4 – cc4 report the Monte Carlo results for the above GMM estimators and the above parameter settings when $T = 4$, while tables aa8 – cc8 report those when $T = 8$.

The bias and rmse (root mean squared error) sizes decrease as the cross-sectional sample sizes increase from $N = 250$, 500, 750, 1000, 10000 to 100000, while Monte Carlo standard errors (mcse) make the better prediction of Monte Carlo standard deviations (mcsd) for the larger cross-sectional sizes. In addition, the convergence rate indicators of mcsd and rmse are less than or close to -0.5 in almost all cases of the larger cross-sectional sizes.[3]

These results bear out the root-N consistency of the above GMM estimators.

When comparing the cases with $T = 4$ and 8, the Monte Carlo statistics for each GMM estimator improve as the number of time periods increases, which is due presumably to both increases of virtual sample sizes and desirable moment conditions.

For the smaller cross-sectional sizes, the larger downward biases are still found for the cases of the larger γ and σ_η^2 when we use the GMM(g-STD), GMM(g-SYS), GMM(h-STD), and GMM(h-SYS) estimators. After all, the dramatic improvement of the downward biases is seen when we use the GMM(FOC-c) estimator.

[3] See Appendix II on the convergence rate indicators.

Appendix I

For the consecutive four time periods (i.e. $t-2$, $t-1$, t, and $t+1$), the maximization problem solving the CMLE of γ is as follows (see Hsiao, 2003, pp.211–216):

$$\max_{\gamma} \sum_{i=1}^{N} \ell_{it} , \tag{I.1}$$

with

$$\ell_{it} = (\Delta y_{it})^2 (\gamma y_{i,t-1}(y_{i,t-2} - y_{i,t+1}) - \ln(1+\exp(\gamma(y_{i,t-2} - y_{i,t+1})))) . \tag{I.2}$$

First, the score for (I.2), which is multiplied by $\delta+2$, is as follows:

$$(\delta+2)\partial \ell_{it} / \partial \gamma = A(y_{i,t-2}, \Delta y_{it}, y_{i,t+1}) + \delta B(y_{i,t-2}, y_{i,t-1}, y_{it}, y_{i,t+1}) ,$$

where $A(y_{i,t-2}, \Delta y_{it}, y_{i,t+1}) = \Delta y_{it} y_{i,t+1} - y_{i,t-2} \Delta y_{it}$ and

$$\begin{aligned} B(y_{i,t-2}, y_{i,t-1}, y_{it}, y_{i,t+1}) = & -2y_{i,t-2}y_{i,t-1}y_{it}y_{i,t+1} - y_{i,t-2}y_{it} - y_{i,t-1}y_{i,t+1} \\ & + y_{i,t-2}y_{i,t-1}y_{it} + y_{i,t-2}y_{i,t-1}y_{i,t+1} + y_{i,t-2}y_{it}y_{i,t+1} + y_{i,t-1}y_{it}y_{i,t+1} . \end{aligned}$$

Next, a calculation (where the facts regarding binary variables (i.e., $y_{it}^2 = y_{it}$ and $(1-y_{it})y_{it} = 0$) are of assistance) proves that

$$(1-y_{i,t-2})\Delta u_{it} - y_{i,t-2}\Delta \upsilon_{it} = C(y_{i,t-2}, \Delta y_{it}) + \delta B(y_{i,t-2}, y_{i,t-1}, y_{it}, y_{i,t+1}) , \tag{I.3}$$

where $C(y_{i,t-2}, \Delta y_{it}) = \Delta y_{it} - 2y_{i,t-2}\Delta y_{it}$.

Accordingly, we prove that

$$(\delta+2)\partial \ell_{it} / \partial \gamma = (1-y_{i,t-2})\Delta u_{it} - y_{i,t-2}\Delta \upsilon_{it} + (y_{i,t+1} + y_{i,t-2} - 1)\Delta y_{it} , \tag{I.4}$$

where $\mathrm{E}[(1-y_{i,t-2})\Delta u_{it}] = 0$, $\mathrm{E}[y_{i,t-2}\Delta \upsilon_{it}] = 0$, and $\mathrm{E}[(y_{i,t+1} + y_{i,t-2} - 1)\Delta y_{it}] = 0$.

We can prove $\mathrm{E}[(1-y_{i,t-2})\Delta u_{it}] = 0$ from (2.3) and (2.4) and $\mathrm{E}[y_{i,t-2}\Delta \upsilon_{it}] = 0$ from (2.6).

From now on, we prove the equality that

$$\mathrm{E}[(y_{i,t+1} + y_{i,t-2} - 1)\Delta y_{it}] = 0 . \tag{I.5}$$

Subtracting (2.5) from (2.3) gives

$$\mathrm{E}[\Delta u_{it} - \Delta \upsilon_{it}] = 0 . \tag{I.6}$$

If $\delta \neq 0$, it follows from (I.6) that $\mathrm{E}[\Delta y_{it}\Delta y_{i,t+1} - \Delta y_{i,t-1}\Delta y_{it}] = 0$ (where we use the fact that $y_{it}^2 = y_{it}$), while if $\delta = 0$ (i.e. $\gamma = 0$), equation (2.1) is rewritten as $y_{it} = g(\eta_i) + v_{it}$. Thus, equation (I.5) is proved.

Appendix II

The convergence rate indicators for the estimators based on mcsd, mcse and rmse are calculated after obtaining them in the experiments.

If the cross-sectional sample size N grows from m to n (i.e. $N = m \to n$), the convergence rate indicator based on mcsd is calculated as follows:

$$\mathrm{r(mcsd)} = \frac{\ln(\mathrm{mcsd}_m) - \ln(\mathrm{mcsd}_n)}{\ln(m) - \ln(n)},$$

where mcsd_m and mcsd_n are mcsd when the cross-sectional sample sizes are m and n, respectively. If the convergence rate is root-N, $\mathrm{r(mcsd)}$ indicates -0.5, while if it is faster than root-N, $\mathrm{r(mcsd)}$ is less than -0.5.

The convergence rate indicators based on mcse and rmse (i.e., $\mathrm{r(mcse)}$ and $\mathrm{r(rmse)}$) are also calculated in the same fashion.

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Table aa4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)

	N=250		*N*=500		*N*=750	
	true	**mcm**	**true**	**mcm**	**true**	**mcm**
	mcsd	mcse	mcsd	mcse	mcsd	mcse
	bias	rmse	bias	rmse	bias	rmse
Simulation(aa)						
GMM(g-STD) γ	**0.500**	**0.356**	**0.500**	**0.426**	**0.500**	**0.449**
	0.529	0.853	0.352	0.339	0.267	0.266
	−0.144	0.548	−0.074	0.360	−0.051	0.272
Sargan, df	**1.301**	**1**	**1.239**	**1**	**1.099**	**1**
GMM(g-SYS) γ	**0.500**	**0.374**	**0.500**	**0.432**	**0.500**	**0.454**
	0.454	0.430	0.312	0.296	0.248	0.237
	−0.126	0.471	−0.068	0.319	−0.046	0.253
Sargan, df	**2.086**	**2**	**2.105**	**2**	**1.959**	**2**
GMM(h-STD) γ	**0.500**	**0.372**	**0.500**	**0.435**	**0.500**	**0.454**
	0.490	0.510	0.328	0.334	0.273	0.271
	−0.128	0.507	−0.065	0.334	−0.046	0.277
Sargan, df	**1.273**	**1**	**1.152**	**1**	**1.058**	**1**
GMM(h-SYS) γ	**0.500**	**0.378**	**0.500**	**0.442**	**0.500**	**0.463**
	0.464	0.474	0.303	0.309	0.251	0.249
	−0.122	0.480	−0.058	0.309	−0.037	0.254
Sargan, df	**2.278**	**2**	**2.207**	**2**	**2.077**	**2**
GMM(FOC-o) γ	**0.500**	**0.481**	**0.500**	**0.493**	**0.500**	**0.490**
	0.458	0.456	0.299	0.299	0.244	0.241
	−0.019	0.459	−0.007	0.299	−0.010	0.245
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.423**	**0.500**	**0.440**	**0.500**	**0.464**
	0.659	0.784	0.474	0.480	0.370	0.357
	−0.077	0.663	−0.060	0.478	−0.036	0.372
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.523**	**0.500**	**0.511**	**0.500**	**0.501**
	0.325	0.317	0.229	0.221	0.182	0.180
	0.023	0.326	0.011	0.229	0.001	0.182
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	

Notes: 1) Inappropriate replications (e.g., cases where estimates of δ less than or quite close to minus one are obtained) are eliminated in calculating the statistics. Their numbers are quite smaller when sample sizes increase. 2) In each of the GMM estimations, the initial consistent estimate is obtained by using the inverse of cross-sectional average of the SSCP matrix of the instruments matrix as the non-optimal weighting matrix, where the components of the moment conditions used are decomposed into the products of transformations and instruments. 3) The values of the Monte Carlo statistics (Monte Carlo mean [**mcm**], Monte Catlo standard deviation [mcsd], Monte Carlo standard error [mcse], bias [bias] and root mean squared error [rmse] for each values of the parameter of interest and Monte Carlo mean of Sargan test statistics of overidentifying restrictions [Sargan] with degree of freedom being [df]) are shown in addition to the true values of the parameter of interest [**true**].

Table aa4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)

	N=1,000		*N*=10,000		*N*=100,000	
	true	**mcm**	**true**	**mcm**	**true**	**mcm**
	mcsd	mcse	mcsd	mcse	mcsd	mcse
	bias	rmse	bias	rmse	bias	rmse
Simulation(aa)						
GMM(g-STD) γ	**0.500**	**0.469**	**0.500**	**0.496**	**0.500**	**0.499**
	0.229	0.229	0.073	0.072	0.023	0.023
	−0.031	0.232	−0.004	0.073	−0.001	0.023
Sargan, df	**1.059**	**1**	**1.076**	**1**	**1.048**	**1**
GMM(g-SYS) γ	**0.500**	**0.467**	**0.500**	**0.496**	**0.500**	**0.499**
	0.211	0.205	0.065	0.064	0.020	0.020
	−0.033	0.213	−0.004	0.066	−0.001	0.020
Sargan, df	**1.981**	**2**	**2.094**	**2**	**2.054**	**2**
GMM(h-STD) γ	**0.500**	**0.470**	**0.500**	**0.497**	**0.500**	**0.499**
	0.226	0.232	0.072	0.072	0.023	0.023
	−0.030	0.228	−0.003	0.072	−0.001	0.023
Sargan, df	**1.017**	**1**	**1.080**	**1**	**1.047**	**1**
GMM(h-SYS) γ	**0.500**	**0.472**	**0.500**	**0.497**	**0.500**	**0.499**
	0.209	0.214	0.067	0.067	0.021	0.021
	−0.028	0.211	−0.003	0.067	−0.001	0.021
Sargan, df	**2.058**	**2**	**2.098**	**2**	**2.028**	**2**
GMM(FOC-o) γ	**0.500**	**0.496**	**0.500**	**0.500**	**0.500**	**0.499**
	0.206	0.206	0.064	0.064	0.020	0.020
	−0.004	0.206	0.000	0.064	−0.001	0.020
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.465**	**0.500**	**0.497**	**0.500**	**0.500**
	0.298	0.299	0.090	0.089	0.028	0.028
	−0.035	0.300	−0.003	0.090	0.000	0.028
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.502**	**0.500**	**0.500**	**0.500**	**0.500**
	0.155	0.155	0.048	0.049	0.015	0.015
	0.002	0.155	0.000	0.048	0.000	0.015
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	

Table aa4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(aa)						
GMM(g-STD) γ						
	-0.59	-1.33	-0.68	-0.59	-0.62	-1.06
		-0.61		-0.69		-0.64
Sargan, df						
GMM(g-SYS) γ						
	-0.54	-0.54	-0.56	-0.55	-0.55	-0.54
		-0.56		-0.58		-0.57
Sargan, df						
GMM(h-STD) γ						
	-0.58	-0.61	-0.45	-0.52	-0.53	-0.58
		-0.60		-0.46		-0.55
Sargan, df						
GMM(h-SYS) γ						
	-0.61	-0.62	-0.47	-0.53	-0.56	-0.59
		-0.64		-0.49		-0.58
Sargan, df						
GMM(FOC-o) γ						
	-0.62	-0.61	-0.50	-0.53	-0.57	-0.58
		-0.62		-0.50		-0.57
Sargan, df						
GMM(FOC-s) γ						
	-0.47	-0.71	-0.61	-0.73	-0.52	-0.72
		-0.47		-0.62		-0.53
Sargan, df						
GMM(FOC-c) γ						
	-0.51	-0.52	-0.56	-0.51	-0.53	-0.51
		-0.51		-0.56		-0.53
Sargan, df						

Notes: 4) See Appendix II on the convergence rate indicators: r(mcsd), r(mcse) and r(rmse).

Table aa4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(aa)								
GMM(g-STD) γ								
	−0.50	−0.50		−0.51	−0.50		−0.50	−0.50
		−0.50			−0.51			−0.50
Sargan, df								
GMM(g-SYS) γ								
	−0.51	−0.50		−0.51	−0.50		−0.51	−0.50
		−0.51			−0.51			−0.51
Sargan, df								
GMM(h-STD) γ								
	−0.50	−0.51		−0.51	−0.50		−0.50	−0.50
		−0.50			−0.51			−0.50
Sargan, df								
GMM(h-SYS) γ								
	−0.49	−0.51		−0.51	−0.50		−0.50	−0.50
		−0.50			−0.51			−0.50
Sargan, df								
GMM(FOC-o) γ								
	−0.50	−0.51		−0.51	−0.50		−0.50	−0.50
		−0.50			−0.51			−0.50
Sargan, df								
GMM(FOC-s) γ								
	−0.52	−0.53		−0.51	−0.50		−0.52	−0.51
		−0.52			−0.51			−0.52
Sargan, df								
GMM(FOC-c) γ								
	−0.51	−0.50		−0.50	−0.50		−0.50	−0.50
		−0.51			−0.50			−0.50
Sargan, df								

Table ab4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ab)								
GMM(g-STD) γ	**0.500**	**0.339**		**0.500**	**0.407**		**0.500**	**0.434**
	0.575	0.683		0.400	0.417		0.312	0.304
	−0.161	0.597		−0.093	0.411		−0.066	0.319
Sargan, df	**1.290**	**1**		**1.279**	**1**		**1.108**	**1**
GMM(g-SYS) γ	**0.500**	**0.348**		**0.500**	**0.416**		**0.500**	**0.442**
	0.523	0.525		0.339	0.323		0.273	0.259
	−0.152	0.545		−0.084	0.349		−0.058	0.279
Sargan, df	**2.122**	**2**		**2.114**	**2**		**1.959**	**2**
GMM(h-STD) γ	**0.500**	**0.342**		**0.500**	**0.431**		**0.500**	**0.442**
	0.537	0.604		0.365	0.367		0.292	0.296
	−0.158	0.560		−0.069	0.371		−0.058	0.298
Sargan, df	**1.275**	**1**		**1.165**	**1**		**1.086**	**1**
GMM(h-SYS) γ	**0.500**	**0.345**		**0.500**	**0.436**		**0.500**	**0.452**
	0.524	0.586		0.338	0.340		0.273	0.273
	−0.155	0.547		−0.064	0.344		−0.048	0.277
Sargan, df	**2.356**	**2**		**2.229**	**2**		**2.100**	**2**
GMM(FOC-o) γ	**0.500**	**0.480**		**0.500**	**0.494**		**0.500**	**0.484**
	0.502	0.516		0.332	0.329		0.268	0.265
	−0.020	0.503		−0.006	0.332		−0.016	0.268
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.427**		**0.500**	**0.436**		**0.500**	**0.453**
	0.708	0.900		0.509	0.533		0.416	0.402
	−0.073	0.712		−0.064	0.513		−0.047	0.418
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.523**		**0.500**	**0.514**		**0.500**	**0.501**
	0.341	0.340		0.243	0.237		0.193	0.193
	0.023	0.342		0.014	0.243		0.001	0.193
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table ab4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)

	N=1,000		*N*=10,000		*N*=100,000	
	true	**mcm**	**true**	**mcm**	**true**	**mcm**
	mcsd	mcse	mcsd	mcse	mcsd	mcse
	bias	rmse	bias	rmse	bias	rmse
Simulation(ab)						
GMM(g-STD) γ	**0.500**	**0.461**	**0.500**	**0.496**	**0.500**	**0.499**
	0.250	0.251	0.079	0.078	0.025	0.025
	−0.039	0.253	−0.004	0.079	−0.001	0.025
Sargan, df	**1.051**	**1**	**1.047**	**1**	**1.034**	**1**
GMM(g-SYS) γ	**0.500**	**0.460**	**0.500**	**0.496**	**0.500**	**0.499**
	0.229	0.223	0.071	0.070	0.022	0.022
	−0.040	0.232	−0.004	0.072	−0.001	0.022
Sargan, df	**1.956**	**2**	**2.049**	**2**	**2.034**	**2**
GMM(h-STD) γ	**0.500**	**0.460**	**0.500**	**0.497**	**0.500**	**0.499**
	0.248	0.254	0.079	0.079	0.025	0.025
	−0.040	0.251	−0.003	0.079	−0.001	0.025
Sargan, df	**1.012**	**1**	**1.044**	**1**	**1.046**	**1**
GMM(h-SYS) γ	**0.500**	**0.464**	**0.500**	**0.497**	**0.500**	**0.499**
	0.233	0.235	0.074	0.073	0.023	0.023
	−0.036	0.236	−0.003	0.074	−0.001	0.023
Sargan, df	**2.043**	**2**	**2.053**	**2**	**2.035**	**2**
GMM(FOC-o) γ	**0.500**	**0.494**	**0.500**	**0.501**	**0.500**	**0.500**
	0.226	0.225	0.071	0.070	0.022	0.022
	−0.006	0.227	0.001	0.071	0.000	0.022
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.459**	**0.500**	**0.497**	**0.500**	**0.499**
	0.328	0.329	0.098	0.096	0.030	0.030
	−0.041	0.330	−0.003	0.098	−0.001	0.030
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.499**	**0.500**	**0.502**	**0.500**	**0.500**
	0.170	0.166	0.053	0.052	0.016	0.017
	−0.001	0.170	0.002	0.053	0.000	0.016
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	

Table ab4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ab)						
GMM(g-STD) γ						
	−0.52	−0.71	−0.61	−0.78	−0.56	−0.74
		−0.54		−0.62		−0.57
Sargan, df						
GMM(g-SYS) γ						
	−0.63	−0.70	−0.53	−0.55	−0.59	−0.64
		−0.64		−0.55		−0.61
Sargan, df						
GMM(h-STD) γ						
	−0.56	−0.72	−0.55	−0.53	−0.55	−0.65
		−0.59		−0.54		−0.57
Sargan, df						
GMM(h-SYS) γ						
	−0.63	−0.79	−0.53	−0.54	−0.59	−0.70
		−0.67		−0.54		−0.62
Sargan, df						
GMM(FOC-o) γ						
	−0.60	−0.65	−0.53	−0.54	−0.57	−0.61
		−0.60		−0.53		−0.57
Sargan, df						
GMM(FOC-s) γ						
	−0.47	−0.76	−0.50	−0.70	−0.48	−0.73
		−0.47		−0.50		−0.48
Sargan, df						
GMM(FOC-c) γ						
	−0.49	−0.52	−0.56	−0.51	−0.52	−0.52
		−0.49		−0.56		−0.52
Sargan, df						

Notes: See Notes in Table aa4.

Table ab4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ab)						
GMM(g-STD) γ						
	-0.50	-0.51	-0.50	-0.50	-0.50	-0.50
		-0.50		-0.50		-0.50
Sargan, df						
GMM(g-SYS) γ						
	-0.51	-0.51	-0.51	-0.50	-0.51	-0.50
		-0.51		-0.51		-0.51
Sargan, df						
GMM(h-STD) γ						
	-0.50	-0.51	-0.51	-0.50	-0.50	-0.51
		-0.50		-0.51		-0.50
Sargan, df						
GMM(h-SYS) γ						
	-0.50	-0.51	-0.51	-0.50	-0.50	-0.50
		-0.50		-0.51		-0.51
Sargan, df						
GMM(FOC-o) γ						
	-0.51	-0.51	-0.51	-0.50	-0.51	-0.50
		-0.51		-0.51		-0.51
Sargan, df						
GMM(FOC-s) γ						
	-0.53	-0.53	-0.51	-0.50	-0.52	-0.52
		-0.53		-0.51		-0.52
Sargan, df						
GMM(FOC-c) γ						
	-0.51	-0.50	-0.51	-0.50	-0.51	-0.50
		-0.51		-0.51		-0.51
Sargan, df						

Table ac4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ac)								
GMM(g-STD) γ	**0.500**	**0.326**		**0.500**	**0.399**		**0.500**	**0.431**
	0.591	0.611		0.411	0.402		0.320	0.316
	−0.174	0.616		−0.101	0.423		−0.069	0.328
Sargan, df	**1.237**	**1**		**1.241**	**1**		**1.097**	**1**
GMM(g-SYS) γ	**0.500**	**0.328**		**0.500**	**0.407**		**0.500**	**0.437**
	0.559	0.532		0.364	0.345		0.293	0.278
	−0.172	0.585		−0.093	0.376		−0.063	0.300
Sargan, df	**2.132**	**2**		**2.087**	**2**		**1.938**	**2**
GMM(h-STD) γ	**0.500**	**0.304**		**0.500**	**0.412**		**0.500**	**0.438**
	0.573	0.642		0.423	0.423		0.313	0.318
	−0.196	0.605		−0.088	0.432		−0.062	0.319
Sargan, df	**1.333**	**1**		**1.242**	**1**		**1.067**	**1**
GMM(h-SYS) γ	**0.500**	**0.315**		**0.500**	**0.425**		**0.500**	**0.449**
	0.563	0.682		0.367	0.368		0.290	0.293
	−0.185	0.592		−0.075	0.374		−0.051	0.294
Sargan, df	**2.324**	**2**		**2.264**	**2**		**2.069**	**2**
GMM(FOC-o) γ	**0.500**	**0.478**		**0.500**	**0.490**		**0.500**	**0.484**
	0.530	0.559		0.365	0.356		0.287	0.284
	−0.022	0.530		−0.010	0.365		−0.016	0.288
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.425**		**0.500**	**0.419**		**0.500**	**0.447**
	0.747	0.982		0.583	0.629		0.445	0.443
	−0.075	0.751		−0.081	0.589		−0.053	0.448
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.526**		**0.500**	**0.514**		**0.500**	**0.502**
	0.361	0.359		0.257	0.250		0.205	0.203
	0.026	0.362		0.014	0.257		0.002	0.205
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table ac4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ac)								
GMM(g-STD) γ	**0.500**	**0.450**		**0.500**	**0.495**		**0.500**	**0.499**
	0.271	0.270		0.084	0.084		0.026	0.026
	−0.050	0.275		−0.005	0.085		−0.001	0.026
Sargan, df	**1.122**	**1**		**1.098**	**1**		**0.997**	**1**
GMM(g-SYS) γ	**0.500**	**0.451**		**0.500**	**0.495**		**0.500**	**0.499**
	0.250	0.239		0.076	0.074		0.023	0.023
	−0.049	0.255		−0.005	0.076		−0.001	0.023
Sargan, df	**1.984**	**2**		**2.071**	**2**		**1.974**	**2**
GMM(h-STD) γ	**0.500**	**0.451**		**0.500**	**0.495**		**0.500**	**0.499**
	0.272	0.273		0.084	0.084		0.026	0.027
	−0.049	0.276		−0.005	0.084		−0.001	0.026
Sargan, df	**1.042**	**1**		**1.100**	**1**		**1.007**	**1**
GMM(h-SYS) γ	**0.500**	**0.457**		**0.500**	**0.496**		**0.500**	**0.499**
	0.255	0.252		0.078	0.078		0.024	0.025
	−0.043	0.259		−0.004	0.078		−0.001	0.024
Sargan, df	**2.074**	**2**		**2.095**	**2**		**1.961**	**2**
GMM(FOC-o) γ	**0.500**	**0.490**		**0.500**	**0.500**		**0.500**	**0.499**
	0.248	0.242		0.075	0.074		0.023	0.024
	−0.010	0.248		0.000	0.075		−0.001	0.023
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**0.500**	**0.453**		**0.500**	**0.498**		**0.500**	**0.499**
	0.362	0.357		0.104	0.103		0.031	0.032
	−0.047	0.365		−0.002	0.104		−0.001	0.031
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**0.500**	**0.501**		**0.500**	**0.500**		**0.500**	**0.500**
	0.182	0.175		0.056	0.055		0.017	0.017
	0.001	0.182		0.000	0.056		0.000	0.017
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table ac4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ac)						
GMM(g-STD) γ						
	−0.52	−0.61	−0.62	−0.59	−0.56	−0.60
		−0.54		−0.63		−0.58
Sargan, df						
GMM(g-SYS) γ						
	−0.62	−0.63	−0.54	−0.53	−0.59	−0.59
		−0.64		−0.56		−0.61
Sargan, df						
GMM(h-STD) γ						
	−0.44	−0.60	−0.75	−0.70	−0.55	−0.64
		−0.49		−0.75		−0.58
Sargan, df						
GMM(h-SYS) γ						
	−0.62	−0.89	−0.58	−0.56	−0.60	−0.77
		−0.66		−0.59		−0.64
Sargan, df						
GMM(FOC-o) γ						
	−0.54	−0.65	−0.59	−0.56	−0.56	−0.62
		−0.54		−0.59		−0.56
Sargan, df						
GMM(FOC-s) γ						
	−0.36	−0.64	−0.67	−0.87	−0.47	−0.72
		−0.35		−0.67		−0.47
Sargan, df						
GMM(FOC-c) γ						
	−0.49	−0.52	−0.55	−0.51	−0.51	−0.52
		−0.49		−0.56		−0.52
Sargan, df						

Notes: See Notes in Table aa4.

Table ac4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(ac)								
GMM(g-STD) γ								
	−0.51	−0.51		−0.51	−0.50		−0.51	−0.50
		−0.51			−0.51			−0.51
Sargan, df								
GMM(g-SYS) γ								
	−0.52	−0.51		−0.53	−0.50		−0.52	−0.50
		−0.52			−0.53			−0.53
Sargan, df								
GMM(h-STD) γ								
	−0.51	−0.51		−0.51	−0.50		−0.51	−0.51
		−0.52			−0.51			−0.51
Sargan, df								
GMM(h-SYS) γ								
	−0.51	−0.51		−0.52	−0.50		−0.51	−0.51
		−0.52			−0.52			−0.52
Sargan, df								
GMM(FOC-o) γ								
	−0.52	−0.51		−0.51	−0.50		−0.52	−0.51
		−0.52			−0.51			−0.52
Sargan, df								
GMM(FOC-s) γ								
	−0.54	−0.54		−0.52	−0.50		−0.53	−0.52
		−0.55			−0.52			−0.53
Sargan, df								
GMM(FOC-c) γ								
	−0.51	−0.50		−0.51	−0.50		−0.51	−0.50
		−0.51			−0.51			−0.51
Sargan, df								

Table ba4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)

	N=250		*N*=500		*N*=750	
	true	**mcm**	**true**	**mcm**	**true**	**mcm**
	mcsd	mcse	mcsd	mcse	mcsd	mcse
	bias	rmse	bias	rmse	bias	rmse
Simulation(ba)						
GMM(g-STD) γ	**1.500**	**1.116**	**1.500**	**1.320**	**1.500**	**1.378**
	0.760	0.861	0.606	0.490	0.464	0.381
	−0.384	0.852	−0.180	0.633	−0.122	0.480
Sargan, df	**2.059**	**1**	**2.070**	**1**	**1.958**	**1**
GMM(g-SYS) γ	**1.500**	**1.103**	**1.500**	**1.355**	**1.500**	**1.412**
	0.747	0.729	0.541	0.455	0.408	0.349
	−0.397	0.846	−0.145	0.560	−0.088	0.417
Sargan, df	**3.053**	**2**	**2.817**	**2**	**2.628**	**2**
GMM(h-STD) γ	**1.500**	**1.107**	**1.500**	**1.307**	**1.500**	**1.351**
	0.813	1.257	0.640	0.770	0.529	0.493
	−0.393	0.903	−0.193	0.668	−0.149	0.549
Sargan, df	**1.993**	**1**	**1.995**	**1**	**2.112**	**1**
GMM(h-SYS) γ	**1.500**	**1.181**	**1.500**	**1.371**	**1.500**	**1.406**
	0.688	0.842	0.521	0.691	0.399	0.372
	−0.319	0.758	−0.129	0.537	−0.094	0.410
Sargan, df	**2.923**	**2**	**2.683**	**2**	**2.590**	**2**
GMM(FOC-o) γ	**1.500**	**1.565**	**1.500**	**1.544**	**1.500**	**1.515**
	0.613	0.590	0.413	0.389	0.318	0.311
	0.065	0.616	0.044	0.415	0.015	0.318
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.495**	**1.500**	**1.500**	**1.500**	**1.489**
	0.783	0.900	0.536	0.538	0.407	0.405
	−0.005	0.783	0.000	0.536	−0.011	0.407
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.600**	**1.500**	**1.557**	**1.500**	**1.523**
	0.539	0.510	0.370	0.346	0.285	0.278
	0.100	0.548	0.057	0.375	0.023	0.286
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	

Notes: See Notes in Table aa4.

Table ba4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ba)								
GMM(g-STD) γ	**1.500**	**1.407**		**1.500**	**1.493**		**1.500**	**1.499**
	0.381	0.331		0.106	0.104		0.033	0.033
	−0.093	0.392		−0.007	0.106		−0.001	0.033
Sargan, df	**1.910**	**1**		**1.104**	**1**		**1.012**	**1**
GMM(g-SYS) γ	**1.500**	**1.431**		**1.500**	**1.496**		**1.500**	**1.499**
	0.328	0.300		0.098	0.096		0.031	0.030
	−0.069	0.335		−0.004	0.098		−0.001	0.031
Sargan, df	**2.526**	**2**		**2.120**	**2**		**2.037**	**2**
GMM(h-STD) γ	**1.500**	**1.405**		**1.500**	**1.492**		**1.500**	**1.499**
	0.394	0.367		0.103	0.104		0.033	0.033
	−0.095	0.405		−0.008	0.103		−0.001	0.033
Sargan, df	**1.693**	**1**		**1.045**	**1**		**0.990**	**1**
GMM(h-SYS) γ	**1.500**	**1.434**		**1.500**	**1.495**		**1.500**	**1.500**
	0.332	0.318		0.096	0.098		0.031	0.031
	−0.066	0.338		−0.005	0.096		0.000	0.031
Sargan, df	**2.456**	**2**		**2.061**	**2**		**1.994**	**2**
GMM(FOC-o) γ	**1.500**	**1.511**		**1.500**	**1.503**		**1.500**	**1.500**
	0.264	0.266		0.082	0.083		0.026	0.026
	0.011	0.265		0.003	0.082		0.000	0.026
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.486**		**1.500**	**1.502**		**1.500**	**1.499**
	0.341	0.342		0.101	0.103		0.032	0.032
	−0.014	0.341		0.002	0.101		−0.001	0.032
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.515**		**1.500**	**1.503**		**1.500**	**1.500**
	0.242	0.238		0.075	0.074		0.023	0.023
	0.015	0.242		0.003	0.075		0.000	0.023
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table ba4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ba)						
GMM(g-STD) γ						
	-0.33	-0.81	-0.66	-0.62	-0.45	-0.74
		-0.43		-0.68		-0.52
Sargan, df						
GMM(g-SYS) γ						
	-0.46	-0.68	-0.70	-0.65	-0.55	-0.67
		-0.59		-0.72		-0.64
Sargan, df						
GMM(h-STD) γ						
	-0.35	-0.71	-0.47	-1.10	-0.39	-0.85
		-0.44		-0.48		-0.45
Sargan, df						
GMM(h-SYS) γ						
	-0.40	-0.29	-0.66	-1.52	-0.50	-0.74
		-0.50		-0.67		-0.56
Sargan, df						
GMM(FOC-o) γ						
	-0.57	-0.60	-0.65	-0.56	-0.60	-0.58
		-0.57		-0.66		-0.60
Sargan, df						
GMM(FOC-s) γ						
	-0.55	-0.74	-0.68	-0.70	-0.60	-0.73
		-0.55		-0.68		-0.60
Sargan, df						
GMM(FOC-c) γ						
	-0.54	-0.56	-0.64	-0.54	-0.58	-0.55
		-0.55		-0.66		-0.59
Sargan, df						

Notes: See Notes in Table aa4.

Table ba4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(ba)								
GMM(g-STD) γ								
	−0.56	−0.50		−0.50	−0.50		−0.53	−0.50
		−0.57			−0.50			−0.53
Sargan, df								
GMM(g-SYS) γ								
	−0.52	−0.49		−0.51	−0.50		−0.52	−0.50
		−0.53			−0.51			−0.52
Sargan, df								
GMM(h-STD) γ								
	−0.58	−0.55		−0.49	−0.50		−0.54	−0.53
		−0.60			−0.49			−0.54
Sargan, df								
GMM(h-SYS) γ								
	−0.54	−0.51		−0.49	−0.50		−0.51	−0.51
		−0.55			−0.49			−0.52
Sargan, df								
GMM(FOC-o) γ								
	−0.51	−0.51		−0.50	−0.50		−0.50	−0.50
		−0.51			−0.50			−0.50
Sargan, df								
GMM(FOC-s) γ								
	−0.53	−0.52		−0.50	−0.50		−0.51	−0.51
		−0.53			−0.50			−0.51
Sargan, df								
GMM(FOC-c) γ								
	−0.51	−0.51		−0.50	−0.50		−0.51	−0.50
		−0.51			−0.50			−0.51
Sargan, df								

Table bb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (bb): $\gamma=1.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bb)								
GMM(g-STD) γ	**1.500**	**1.071**		**1.500**	**1.282**		**1.500**	**1.340**
	0.784	0.982		0.645	0.563		0.482	0.405
	−0.429	0.894		−0.218	0.681		−0.160	0.508
Sargan, df	**1.960**	**1**		**2.096**	**1**		**2.067**	**1**
GMM(g-SYS) γ	**1.500**	**1.038**		**1.500**	**1.316**		**1.500**	**1.382**
	0.775	0.798		0.577	0.479		0.425	0.370
	−0.462	0.902		−0.184	0.606		−0.118	0.441
Sargan, df	**2.919**	**2**		**2.884**	**2**		**2.668**	**2**
GMM(h-STD) γ	**1.500**	**1.065**		**1.500**	**1.279**		**1.500**	**1.332**
	0.818	1.361		0.672	0.852		0.519	0.543
	−0.435	0.926		−0.221	0.708		−0.168	0.546
Sargan, df	**1.876**	**1**		**2.094**	**1**		**2.050**	**1**
GMM(h-SYS) γ	**1.500**	**1.132**		**1.500**	**1.349**		**1.500**	**1.384**
	0.714	0.852		0.562	0.526		0.431	0.393
	−0.368	0.803		−0.151	0.582		−0.116	0.447
Sargan, df	**2.840**	**2**		**2.785**	**2**		**2.604**	**2**
GMM(FOC-o) γ	**1.500**	**1.549**		**1.500**	**1.540**		**1.500**	**1.508**
	0.620	0.626		0.426	0.410		0.332	0.328
	0.049	0.621		0.040	0.428		0.008	0.332
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.466**		**1.500**	**1.492**		**1.500**	**1.479**
	0.805	0.952		0.567	0.579		0.436	0.433
	−0.034	0.805		−0.008	0.568		−0.021	0.437
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.588**		**1.500**	**1.554**		**1.500**	**1.522**
	0.535	0.532		0.384	0.363		0.297	0.291
	0.088	0.542		0.054	0.388		0.022	0.298
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table bb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (bb): $\gamma=1.5$, $\sigma_\eta^2=1.0$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bb)								
GMM(g-STD) γ	**1.500**	**1.381**		**1.500**	**1.495**		**1.500**	**1.498**
	0.427	0.383		0.114	0.110		0.036	0.035
	−0.119	0.443		−0.005	0.114		−0.002	0.036
Sargan, df	**2.011**	**1**		**1.110**	**1**		**1.001**	**1**
GMM(g-SYS) γ	**1.500**	**1.415**		**1.500**	**1.496**		**1.500**	**1.498**
	0.344	0.316		0.104	0.101		0.033	0.032
	−0.085	0.354		−0.004	0.104		−0.002	0.033
Sargan, df	**2.613**	**2**		**2.095**	**2**		**2.002**	**2**
GMM(h-STD) γ	**1.500**	**1.383**		**1.500**	**1.493**		**1.500**	**1.499**
	0.471	0.465		0.111	0.111		0.035	0.035
	−0.117	0.485		−0.007	0.112		−0.001	0.035
Sargan, df	**1.909**	**1**		**0.992**	**1**		**1.016**	**1**
GMM(h-SYS) γ	**1.500**	**1.424**		**1.500**	**1.495**		**1.500**	**1.498**
	0.361	0.338		0.104	0.104		0.033	0.033
	−0.076	0.369		−0.005	0.105		−0.002	0.033
Sargan, df	**2.466**	**2**		**2.016**	**2**		**2.000**	**2**
GMM(FOC-o) γ	**1.500**	**1.512**		**1.500**	**1.504**		**1.500**	**1.500**
	0.278	0.280		0.088	0.087		0.028	0.027
	0.012	0.278		0.004	0.089		0.000	0.028
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.484**		**1.500**	**1.500**		**1.500**	**1.498**
	0.357	0.359		0.108	0.107		0.034	0.034
	−0.016	0.357		0.000	0.108		−0.002	0.034
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.516**		**1.500**	**1.504**		**1.500**	**1.500**
	0.248	0.250		0.079	0.078		0.026	0.025
	0.016	0.249		0.004	0.079		0.000	0.026
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table bb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=1.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(bb)						
GMM(g-STD) γ						
	-0.28	-0.80	-0.72	-0.81	-0.44	-0.81
		-0.39		-0.72		-0.51
Sargan, df						
GMM(g-SYS) γ						
	-0.43	-0.74	-0.75	-0.64	-0.55	-0.70
		-0.57		-0.78		-0.65
Sargan, df						
GMM(h-STD) γ						
	-0.28	-0.68	-0.64	-1.11	-0.41	-0.84
		-0.39		-0.64		-0.48
Sargan, df						
GMM(h-SYS) γ						
	-0.35	-0.70	-0.65	-0.72	-0.46	-0.70
		-0.46		-0.65		-0.53
Sargan, df						
GMM(FOC-o) γ						
	-0.54	-0.61	-0.62	-0.55	-0.57	-0.59
		-0.54		-0.63		-0.57
Sargan, df						
GMM(FOC-s) γ						
	-0.50	-0.72	-0.65	-0.72	-0.56	-0.72
		-0.51		-0.65		-0.56
Sargan, df						
GMM(FOC-c) γ						
	-0.48	-0.55	-0.63	-0.54	-0.53	-0.55
		-0.48		-0.65		-0.54
Sargan, df						

Notes: See Notes in Table aa4.

Table bb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=1.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(bb)								
GMM(g-STD) γ								
	−0.57	−0.54		−0.51	−0.50		−0.54	−0.52
		−0.59			−0.51			−0.55
Sargan, df								
GMM(g-SYS) γ								
	−0.52	−0.49		−0.50	−0.50		−0.51	−0.50
		−0.53			−0.50			−0.52
Sargan, df								
GMM(h-STD) γ								
	−0.63	−0.62		−0.50	−0.50		−0.56	−0.56
		−0.64			−0.50			−0.57
Sargan, df								
GMM(h-SYS) γ								
	−0.54	−0.51		−0.50	−0.50		−0.52	−0.51
		−0.55			−0.50			−0.52
Sargan, df								
GMM(FOC-o) γ								
	−0.50	−0.51		−0.50	−0.50		−0.50	−0.50
		−0.50			−0.50			−0.50
Sargan, df								
GMM(FOC-s) γ								
	−0.52	−0.52		−0.50	−0.50		−0.51	−0.51
		−0.52			−0.50			−0.51
Sargan, df								
GMM(FOC-c) γ								
	−0.50	−0.51		−0.49	−0.50		−0.49	−0.50
		−0.50			−0.49			−0.49
Sargan, df								

Table bc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bc)								
GMM(g-STD) γ	**1.500**	**1.053**		**1.500**	**1.260**		**1.500**	**1.328**
	0.800	0.905		0.626	0.543		0.514	0.435
	−0.447	0.916		−0.240	0.671		−0.172	0.542
Sargan, df	**1.929**	**1**		**2.058**	**1**		**2.004**	**1**
GMM(g-SYS) γ	**1.500**	**1.011**		**1.500**	**1.292**		**1.500**	**1.368**
	0.780	0.819		0.593	0.509		0.447	0.389
	−0.489	0.920		−0.208	0.628		−0.132	0.466
Sargan, df	**2.898**	**2**		**2.900**	**2**		**2.710**	**2**
GMM(h-STD) γ	**1.500**	**1.032**		**1.500**	**1.230**		**1.500**	**1.318**
	0.807	1.191		0.739	1.011		0.544	0.513
	−0.468	0.932		−0.270	0.786		−0.182	0.574
Sargan, df	**1.921**	**1**		**2.188**	**1**		**2.065**	**1**
GMM(h-SYS) γ	**1.500**	**1.073**		**1.500**	**1.319**		**1.500**	**1.368**
	0.770	0.959		0.579	0.617		0.472	0.446
	−0.427	0.881		−0.181	0.606		−0.132	0.490
Sargan, df	**2.964**	**2**		**2.790**	**2**		**2.659**	**2**
GMM(FOC-o) γ	**1.500**	**1.560**		**1.500**	**1.539**		**1.500**	**1.514**
	0.658	0.670		0.446	0.430		0.350	0.344
	0.060	0.661		0.039	0.448		0.014	0.350
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.485**		**1.500**	**1.487**		**1.500**	**1.484**
	0.831	1.007		0.585	0.606		0.444	0.450
	−0.015	0.832		−0.013	0.585		−0.016	0.445
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.602**		**1.500**	**1.553**		**1.500**	**1.527**
	0.563	0.559		0.400	0.379		0.312	0.304
	0.102	0.572		0.053	0.403		0.027	0.313
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table bc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bc)								
GMM(g-STD) γ	**1.500**	**1.364**		**1.500**	**1.493**		**1.500**	**1.498**
	0.471	0.406		0.115	0.116		0.036	0.036
	−0.136	0.490		−0.007	0.116		−0.002	0.036
Sargan, df	**2.051**	**1**		**1.092**	**1**		**1.010**	**1**
GMM(g-SYS) γ	**1.500**	**1.407**		**1.500**	**1.495**		**1.500**	**1.498**
	0.369	0.330		0.106	0.106		0.033	0.033
	−0.093	0.381		−0.005	0.107		−0.002	0.033
Sargan, df	**2.621**	**2**		**2.041**	**2**		**1.989**	**2**
GMM(h-STD) γ	**1.500**	**1.363**		**1.500**	**1.491**		**1.500**	**1.498**
	0.457	0.422		0.115	0.117		0.037	0.037
	−0.137	0.477		−0.009	0.116		−0.002	0.037
Sargan, df	**1.945**	**1**		**1.086**	**1**		**1.018**	**1**
GMM(h-SYS) γ	**1.500**	**1.409**		**1.500**	**1.493**		**1.500**	**1.499**
	0.372	0.354		0.109	0.110		0.035	0.035
	−0.091	0.384		−0.007	0.110		−0.001	0.035
Sargan, df	**2.528**	**2**		**2.070**	**2**		**1.981**	**2**
GMM(FOC-o) γ	**1.500**	**1.510**		**1.500**	**1.504**		**1.500**	**1.500**
	0.290	0.293		0.089	0.091		0.029	0.029
	0.010	0.290		0.004	0.089		0.000	0.029
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**1.500**	**1.480**		**1.500**	**1.500**		**1.500**	**1.499**
	0.377	0.375		0.113	0.112		0.035	0.035
	−0.020	0.378		0.000	0.113		−0.001	0.035
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**1.500**	**1.515**		**1.500**	**1.503**		**1.500**	**1.500**
	0.258	0.260		0.080	0.081		0.026	0.026
	0.015	0.259		0.003	0.081		0.000	0.026
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table bc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(bc)						
GMM(g-STD) γ						
	-0.35	-0.74	-0.49	-0.55	-0.40	-0.67
		-0.45		-0.53		-0.48
Sargan, df						
GMM(g-SYS) γ						
	-0.39	-0.69	-0.70	-0.66	-0.51	-0.68
		-0.55		-0.74		-0.62
Sargan, df						
GMM(h-STD) γ						
	-0.13	-0.24	-0.75	-1.67	-0.36	-0.77
		-0.25		-0.78		-0.44
Sargan, df						
GMM(h-SYS) γ						
	-0.41	-0.64	-0.50	-0.80	-0.45	-0.70
		-0.54		-0.52		-0.53
Sargan, df						
GMM(FOC-o) γ						
	-0.56	-0.64	-0.60	-0.55	-0.58	-0.61
		-0.56		-0.61		-0.58
Sargan, df						
GMM(FOC-s) γ						
	-0.51	-0.73	-0.68	-0.73	-0.57	-0.73
		-0.51		-0.68		-0.57
Sargan, df						
GMM(FOC-c) γ						
	-0.49	-0.56	-0.61	-0.54	-0.54	-0.56
		-0.50		-0.62		-0.55
Sargan, df						

Notes: See Notes in Table aa4.

Table bc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(bc)						
GMM(g-STD) γ						
	-0.61	-0.55	-0.50	-0.50	-0.56	-0.52
		-0.63		-0.50		-0.57
Sargan, df						
GMM(g-SYS) γ						
	-0.54	-0.50	-0.51	-0.50	-0.52	-0.50
		-0.55		-0.51		-0.53
Sargan, df						
GMM(h-STD) γ						
	-0.60	-0.56	-0.49	-0.50	-0.54	-0.53
		-0.62		-0.49		-0.55
Sargan, df						
GMM(h-SYS) γ						
	-0.53	-0.51	-0.50	-0.50	-0.51	-0.50
		-0.54		-0.50		-0.52
Sargan, df						
GMM(FOC-o) γ						
	-0.51	-0.51	-0.49	-0.50	-0.50	-0.51
		-0.51		-0.49		-0.50
Sargan, df						
GMM(FOC-s) γ						
	-0.52	-0.53	-0.51	-0.50	-0.52	-0.51
		-0.52		-0.51		-0.52
Sargan, df						
GMM(FOC-c) γ						
	-0.51	-0.51	-0.48	-0.50	-0.50	-0.50
		-0.51		-0.48		-0.50
Sargan, df						

Table ca4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ca)								
GMM(g-STD) γ	**2.500**	**1.159**		**2.500**	**1.717**		**2.500**	**1.983**
	0.878	1.355		0.848	1.500		0.777	0.767
	−1.341	1.603		−0.783	1.154		−0.517	0.933
Sargan, df	**3.559**	**1**		**4.520**	**1**		**4.381**	**1**
GMM(g-SYS) γ	**2.500**	**0.924**		**2.500**	**1.615**		**2.500**	**1.943**
	1.034	2.041		1.007	37.983		0.885	0.907
	−1.576	1.885		−0.885	1.341		−0.557	1.046
Sargan, df	**3.998**	**2**		**4.501**	**2**		**4.714**	**2**
GMM(h-STD) γ	**2.500**	**1.480**		**2.500**	**1.845**		**2.500**	**2.049**
	0.783	1.600		0.815	2.174		0.740	0.917
	−1.020	1.286		−0.655	1.046		−0.451	0.867
Sargan, df	**2.585**	**1**		**2.871**	**1**		**2.960**	**1**
GMM(h-SYS) γ	**2.500**	**1.508**		**2.500**	**1.934**		**2.500**	**2.120**
	0.694	1.145		0.652	0.886		0.668	0.879
	−0.992	1.210		−0.566	0.863		−0.380	0.769
Sargan, df	**4.391**	**2**		**4.560**	**2**		**4.291**	**2**
GMM(FOC-o) γ	**2.500**	**2.260**		**2.500**	**2.565**		**2.500**	**2.591**
	0.627	0.923		0.626	0.718		0.598	0.590
	−0.240	0.671		0.065	0.629		0.091	0.605
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.186**		**2.500**	**2.504**		**2.500**	**2.552**
	0.837	1.295		0.725	0.875		0.684	0.687
	−0.314	0.893		0.004	0.725		0.052	0.686
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.299**		**2.500**	**2.579**		**2.500**	**2.601**
	0.552	0.855		0.592	0.688		0.575	0.569
	−0.201	0.587		0.079	0.597		0.101	0.584
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table ca4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ca)								
GMM(g-STD) γ	**2.500**	**2.098**		**2.500**	**2.478**		**2.500**	**2.496**
	0.746	0.646		0.202	0.187		0.065	0.062
	−0.402	0.847		−0.022	0.203		−0.004	0.065
Sargan, df	**4.909**	**1**		**1.746**	**1**		**1.086**	**1**
GMM(g-SYS) γ	**2.500**	**2.099**		**2.500**	**2.483**		**2.500**	**2.497**
	0.785	0.661		0.195	0.187		0.063	0.060
	−0.401	0.881		−0.017	0.196		−0.003	0.063
Sargan, df	**5.066**	**2**		**2.281**	**2**		**2.063**	**2**
GMM(h-STD) γ	**2.500**	**2.181**		**2.500**	**2.479**		**2.500**	**2.499**
	0.680	0.738		0.195	0.198		0.061	0.060
	−0.319	0.751		−0.021	0.196		−0.001	0.061
Sargan, df	**3.444**	**1**		**1.644**	**1**		**1.066**	**1**
GMM(h-SYS) γ	**2.500**	**2.221**		**2.500**	**2.484**		**2.500**	**2.500**
	0.660	0.677		0.188	0.182		0.059	0.058
	−0.279	0.717		−0.016	0.188		0.000	0.059
Sargan, df	**4.631**	**2**		**2.303**	**2**		**2.053**	**2**
GMM(FOC-o) γ	**2.500**	**2.595**		**2.500**	**2.510**		**2.500**	**2.501**
	0.533	0.504		0.147	0.148		0.048	0.046
	0.095	0.541		0.010	0.148		0.001	0.048
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.563**		**2.500**	**2.507**		**2.500**	**2.501**
	0.601	0.579		0.163	0.165		0.053	0.052
	0.063	0.604		0.007	0.163		0.001	0.053
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.599**		**2.500**	**2.510**		**2.500**	**2.502**
	0.513	0.487		0.143	0.143		0.046	0.045
	0.099	0.522		0.010	0.144		0.002	0.046
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table ca4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ca)						
GMM(g-STD) γ						
	−0.05	0.15	−0.22	−1.65	−0.11	−0.52
		−0.47		−0.52		−0.49
Sargan, df						
GMM(g-SYS) γ						
	−0.04	4.22	−0.32	−9.21	−0.14	−0.74
		−0.49		−0.61		−0.54
Sargan, df						
GMM(h-STD) γ						
	0.06	0.44	−0.24	−2.13	−0.05	−0.51
		−0.30		−0.46		−0.36
Sargan, df						
GMM(h-SYS) γ						
	−0.09	−0.37	0.06	−0.02	−0.03	−0.24
		−0.49		−0.28		−0.41
Sargan, df						
GMM(FOC-o) γ						
	0.00	−0.36	−0.11	−0.48	−0.04	−0.41
		−0.09		−0.10		−0.09
Sargan, df						
GMM(FOC-s) γ						
	−0.21	−0.57	−0.14	−0.59	−0.18	−0.58
		−0.30		−0.14		−0.24
Sargan, df						
GMM(FOC-c) γ						
	0.10	−0.31	−0.07	−0.47	0.04	−0.37
		0.02		−0.05		−0.01
Sargan, df						

Notes: See Notes in Table aa4.

Table ca4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ca)						
GMM(g-STD) γ						
	−0.57	−0.54	−0.49	−0.48	−0.53	−0.51
		−0.62		−0.49		−0.56
Sargan, df						
GMM(g-SYS) γ						
	−0.60	−0.55	−0.49	−0.49	−0.55	−0.52
		−0.65		−0.49		−0.57
Sargan, df						
GMM(h-STD) γ						
	−0.54	−0.57	−0.51	−0.52	−0.53	−0.54
		−0.58		−0.51		−0.55
Sargan, df						
GMM(h-SYS) γ						
	−0.55	−0.57	−0.50	−0.50	−0.52	−0.53
		−0.58		−0.50		−0.54
Sargan, df						
GMM(FOC-o) γ						
	−0.56	−0.53	−0.49	−0.50	−0.52	−0.52
		−0.56		−0.49		−0.53
Sargan, df						
GMM(FOC-s) γ						
	−0.57	−0.55	−0.49	−0.50	−0.53	−0.52
		−0.57		−0.49		−0.53
Sargan, df						
GMM(FOC-c) γ						
	−0.55	−0.53	−0.49	−0.50	−0.52	−0.52
		−0.56		−0.49		−0.53
Sargan, df						

Table cb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cb)								
GMM(g-STD) γ	**2.500**	**1.153**		**2.500**	**1.704**		**2.500**	**1.977**
	0.885	1.760		0.768	0.946		0.780	0.815
	−1.347	1.612		−0.796	1.106		−0.523	0.939
Sargan, df	**3.509**	**1**		**4.395**	**1**		**4.172**	**1**
GMM(g-SYS) γ	**2.500**	**0.882**		**2.500**	**1.585**		**2.500**	**1.946**
	1.007	1.641		0.973	1.310		0.836	0.750
	−1.618	1.906		−0.915	1.336		−0.554	1.003
Sargan, df	**4.025**	**2**		**4.557**	**2**		**4.584**	**2**
GMM(h-STD) γ	**2.500**	**1.397**		**2.500**	**1.789**		**2.500**	**2.006**
	0.826	1.826		0.842	1.422		0.779	0.918
	−1.103	1.378		−0.711	1.102		−0.494	0.922
Sargan, df	**2.496**	**1**		**3.144**	**1**		**3.591**	**1**
GMM(h-SYS) γ	**2.500**	**1.437**		**2.500**	**1.900**		**2.500**	**2.100**
	0.746	1.328		0.687	0.943		0.701	1.250
	−1.063	1.299		−0.600	0.912		−0.400	0.807
Sargan, df	**4.174**	**2**		**4.615**	**2**		**4.809**	**2**
GMM(FOC-o) γ	**2.500**	**2.248**		**2.500**	**2.564**		**2.500**	**2.598**
	0.651	0.933		0.627	0.721		0.605	0.596
	−0.252	0.698		0.064	0.630		0.098	0.613
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.190**		**2.500**	**2.512**		**2.500**	**2.570**
	0.820	1.252		0.751	0.876		0.668	0.677
	−0.310	0.876		0.012	0.751		0.070	0.671
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.290**		**2.500**	**2.578**		**2.500**	**2.610**
	0.548	0.857		0.600	0.693		0.578	0.574
	−0.210	0.587		0.078	0.605		0.110	0.588
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table cb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)

	N=1,000		*N*=10,000		*N*=100,000	
	true	**mcm**	**true**	**mcm**	**true**	**mcm**
	mcsd	mcse	mcsd	mcse	mcsd	mcse
	bias	rmse	bias	rmse	bias	rmse
Simulation(cb)						
GMM(g-STD) γ	**2.500**	**2.094**	**2.500**	**2.478**	**2.500**	**2.496**
	0.747	0.861	0.209	0.188	0.063	0.062
	−0.406	0.850	−0.022	0.210	−0.004	0.063
Sargan, df	**4.529**	**1**	**1.901**	**1**	**1.061**	**1**
GMM(g-SYS) γ	**2.500**	**2.125**	**2.500**	**2.484**	**2.500**	**2.497**
	0.723	0.580	0.201	0.188	0.061	0.061
	−0.375	0.814	−0.016	0.201	−0.003	0.061
Sargan, df	**4.449**	**2**	**2.322**	**2**	**2.003**	**2**
GMM(h-STD) γ	**2.500**	**2.121**	**2.500**	**2.474**	**2.500**	**2.498**
	0.778	3.766	0.205	0.201	0.062	0.062
	−0.379	0.865	−0.026	0.207	−0.002	0.062
Sargan, df	**4.026**	**1**	**2.342**	**1**	**1.023**	**1**
GMM(h-SYS) γ	**2.500**	**2.203**	**2.500**	**2.481**	**2.500**	**2.499**
	0.671	0.680	0.196	0.185	0.060	0.060
	−0.297	0.734	−0.019	0.197	−0.001	0.060
Sargan, df	**4.666**	**2**	**2.443**	**2**	**2.003**	**2**
GMM(FOC-o) γ	**2.500**	**2.583**	**2.500**	**2.510**	**2.500**	**2.501**
	0.524	0.505	0.149	0.148	0.047	0.047
	0.083	0.531	0.010	0.149	0.001	0.047
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.549**	**2.500**	**2.506**	**2.500**	**2.500**
	0.595	0.572	0.166	0.164	0.052	0.051
	0.049	0.597	0.006	0.166	0.000	0.052
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.587**	**2.500**	**2.510**	**2.500**	**2.501**
	0.509	0.487	0.145	0.144	0.045	0.045
	0.087	0.516	0.010	0.146	0.001	0.045
Sargan, df	**Just Identification**		**Just Identification**		**Just Identification**	

Table cb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(cb)						
GMM(g-STD) γ						
	-0.21	-0.90	0.04	-0.37	-0.11	-0.70
		-0.54		-0.40		-0.49
Sargan, df						
GMM(g-SYS) γ						
	-0.05	-0.32	-0.38	-1.38	-0.17	-0.71
		-0.51		-0.71		-0.58
Sargan, df						
GMM(h-STD) γ						
	0.03	-0.36	-0.19	-1.08	-0.05	-0.63
		-0.32		-0.44		-0.37
Sargan, df						
GMM(h-SYS) γ						
	-0.12	-0.49	0.05	0.70	-0.06	-0.05
		-0.51		-0.30		-0.43
Sargan, df						
GMM(FOC-o) γ						
	-0.06	-0.37	-0.09	-0.47	-0.07	-0.41
		-0.15		-0.07		-0.12
Sargan, df						
GMM(FOC-s) γ						
	-0.13	-0.52	-0.29	-0.63	-0.19	-0.56
		-0.22		-0.28		-0.24
Sargan, df						
GMM(FOC-c) γ						
	0.13	-0.31	-0.09	-0.46	0.05	-0.36
		0.04		-0.07		0.00
Sargan, df						

Notes: See Notes in Table aa4.

Table cb4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(cb)						
GMM(g-STD) γ						
	-0.55	-0.66	-0.52	-0.48	-0.54	-0.57
		-0.61		-0.52		-0.56
Sargan, df						
GMM(g-SYS) γ						
	-0.56	-0.49	-0.52	-0.49	-0.54	-0.49
		-0.61		-0.52		-0.56
Sargan, df						
GMM(h-STD) γ						
	-0.58	-1.27	-0.52	-0.51	-0.55	-0.89
		-0.62		-0.53		-0.57
Sargan, df						
GMM(h-SYS) γ						
	-0.53	-0.56	-0.51	-0.49	-0.52	-0.53
		-0.57		-0.51		-0.54
Sargan, df						
GMM(FOC-o) γ						
	-0.55	-0.53	-0.50	-0.50	-0.53	-0.52
		-0.55		-0.51		-0.53
Sargan, df						
GMM(FOC-s) γ						
	-0.55	-0.54	-0.51	-0.50	-0.53	-0.52
		-0.55		-0.51		-0.53
Sargan, df						
GMM(FOC-c) γ						
	-0.54	-0.53	-0.51	-0.50	-0.53	-0.52
		-0.55		-0.51		-0.53
Sargan, df						

Table cc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cc)								
GMM(g-STD) γ	**2.500**	**1.146**		**2.500**	**1.705**		**2.500**	**1.956**
	0.897	24.264		0.794	0.999		0.747	0.786
	−1.354	1.624		−0.795	1.123		−0.544	0.925
Sargan, df	**3.365**	**1**		**4.096**	**1**		**4.052**	**1**
GMM(g-SYS) γ	**2.500**	**0.893**		**2.500**	**1.610**		**2.500**	**1.935**
	0.995	1.654		0.932	1.062		0.838	0.791
	−1.607	1.890		−0.890	1.289		−0.565	1.011
Sargan, df	**3.929**	**2**		**4.205**	**2**		**4.456**	**2**
GMM(h-STD) γ	**2.500**	**1.330**		**2.500**	**1.720**		**2.500**	**1.949**
	0.794	1.509		0.860	1.445		0.800	0.982
	−1.170	1.414		−0.780	1.161		−0.551	0.971
Sargan, df	**2.559**	**1**		**3.259**	**1**		**3.666**	**1**
GMM(h-SYS) γ	**2.500**	**1.389**		**2.500**	**1.835**		**2.500**	**2.060**
	0.699	1.190		0.750	1.625		0.678	0.785
	−1.111	1.313		−0.665	1.003		−0.440	0.808
Sargan, df	**4.187**	**2**		**4.574**	**2**		**4.801**	**2**
GMM(FOC-o) γ	**2.500**	**2.236**		**2.500**	**2.534**		**2.500**	**2.589**
	0.634	0.942		0.622	0.724		0.595	0.603
	−0.264	0.687		0.034	0.623		0.089	0.602
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.138**		**2.500**	**2.485**		**2.500**	**2.559**
	0.846	1.318		0.733	0.867		0.666	0.687
	−0.362	0.920		−0.015	0.733		0.059	0.669
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.270**		**2.500**	**2.549**		**2.500**	**2.602**
	0.534	0.864		0.588	0.694		0.570	0.581
	−0.230	0.582		0.049	0.590		0.102	0.579
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Notes: See Notes in Table aa4.

Table cc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$) (Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cc)								
GMM(g-STD) γ	**2.500**	**2.084**		**2.500**	**2.479**		**2.500**	**2.497**
	0.754	0.713		0.209	0.191		0.063	0.064
	−0.416	0.862		−0.021	0.210		−0.003	0.063
Sargan, df	**4.368**	**1**		**2.003**	**1**		**1.060**	**1**
GMM(g-SYS) γ	**2.500**	**2.133**		**2.500**	**2.487**		**2.500**	**2.497**
	0.716	0.591		0.200	0.191		0.061	0.061
	−0.367	0.805		−0.013	0.201		−0.003	0.061
Sargan, df	**4.420**	**2**		**2.341**	**2**		**2.011**	**2**
GMM(h-STD) γ	**2.500**	**2.096**		**2.500**	**2.469**		**2.500**	**2.498**
	0.782	0.915		0.205	0.203		0.064	0.063
	−0.404	0.880		−0.031	0.207		−0.002	0.064
Sargan, df	**4.187**	**1**		**3.419**	**1**		**1.049**	**1**
GMM(h-SYS) γ	**2.500**	**2.199**		**2.500**	**2.479**		**2.500**	**2.499**
	0.667	0.687		0.193	0.189		0.062	0.061
	−0.301	0.732		−0.021	0.194		−0.001	0.062
Sargan, df	**4.539**	**2**		**2.451**	**2**		**1.989**	**2**
GMM(FOC-o) γ	**2.500**	**2.586**		**2.500**	**2.511**		**2.500**	**2.501**
	0.526	0.512		0.146	0.151		0.047	0.047
	0.086	0.533		0.011	0.146		0.001	0.047
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-s) γ	**2.500**	**2.559**		**2.500**	**2.508**		**2.500**	**2.500**
	0.583	0.574		0.165	0.166		0.052	0.052
	0.059	0.586		0.008	0.166		0.000	0.052
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	
GMM(FOC-c) γ	**2.500**	**2.588**		**2.500**	**2.511**		**2.500**	**2.500**
	0.512	0.495		0.143	0.146		0.046	0.046
	0.088	0.519		0.011	0.143		0.000	0.046
Sargan, df	**Just Identification**			**Just Identification**			**Just Identification**	

Table cc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=250,500,750$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(cc)						
GMM(g-STD) γ						
	-0.18	-4.60	-0.15	-0.59	-0.17	-3.12
		-0.53		-0.48		-0.51
Sargan, df						
GMM(g-SYS) γ						
	-0.09	-0.64	-0.26	-0.73	-0.16	-0.67
		-0.55		-0.60		-0.57
Sargan, df						
GMM(h-STD) γ						
	0.12	-0.06	-0.18	-0.95	0.01	-0.39
		-0.28		-0.44		-0.34
Sargan, df						
GMM(h-SYS) γ						
	0.10	0.45	-0.25	-1.80	-0.03	-0.38
		-0.39		-0.53		-0.44
Sargan, df						
GMM(FOC-o) γ						
	-0.03	-0.38	-0.11	-0.45	-0.06	-0.41
		-0.14		-0.08		-0.12
Sargan, df						
GMM(FOC-s) γ						
	-0.21	-0.60	-0.23	-0.58	-0.22	-0.59
		-0.33		-0.23		-0.29
Sargan, df						
GMM(FOC-c) γ						
	0.14	-0.32	-0.08	-0.44	0.06	-0.36
		0.02		-0.05		-0.01
Sargan, df						

Notes: See Notes in Table aa4.

Table cc4. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=4$ (and $N=1000,10000,100000$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(cc)						
GMM(g-STD) γ						
	-0.56	-0.57	-0.52	-0.48	-0.54	-0.52
		-0.61		-0.52		-0.57
Sargan, df						
GMM(g-SYS) γ						
	-0.55	-0.49	-0.52	-0.49	-0.54	-0.49
		-0.60		-0.52		-0.56
Sargan, df						
GMM(h-STD) γ						
	-0.58	-0.65	-0.51	-0.50	-0.54	-0.58
		-0.63		-0.51		-0.57
Sargan, df						
GMM(h-SYS) γ						
	-0.54	-0.56	-0.49	-0.49	-0.52	-0.53
		-0.58		-0.49		-0.54
Sargan, df						
GMM(FOC-o) γ						
	-0.56	-0.53	-0.49	-0.50	-0.52	-0.52
		-0.56		-0.49		-0.53
Sargan, df						
GMM(FOC-s) γ						
	-0.55	-0.54	-0.50	-0.50	-0.52	-0.52
		-0.55		-0.50		-0.52
Sargan, df						
GMM(FOC-c) γ						
	-0.55	-0.53	-0.49	-0.50	-0.52	-0.52
		-0.56		-0.50		-0.53
Sargan, df						

Table aa8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(aa)								
GMM(g-STD) γ	**0.500**	**0.328**		**0.500**	**0.417**		**0.500**	**0.450**
	0.210	0.184		0.145	0.133		0.115	0.110
	−0.172	0.272		−0.083	0.167		−0.050	0.125
Sargan, df	**11.538**	**9**		**10.312**	**9**		**9.754**	**9**
GMM(g-SYS) γ	**0.500**	**0.355**		**0.500**	**0.423**		**0.500**	**0.453**
	0.192	0.159		0.139	0.121		0.112	0.102
	−0.145	0.241		−0.077	0.159		−0.047	0.121
Sargan, df	**15.379**	**14**		**14.734**	**14**		**14.317**	**14**
GMM(h-STD) γ	**0.500**	**0.352**		**0.500**	**0.428**		**0.500**	**0.456**
	0.214	0.185		0.144	0.133		0.115	0.110
	−0.148	0.261		−0.072	0.161		−0.044	0.123
Sargan, df	**11.199**	**9**		**10.087**	**9**		**9.665**	**9**
GMM(h-SYS) γ	**0.500**	**0.315**		**0.500**	**0.407**		**0.500**	**0.441**
	0.208	0.181		0.142	0.129		0.112	0.106
	−0.185	0.278		−0.093	0.170		−0.059	0.127
Sargan, df	**15.754**	**14**		**14.920**	**14**		**14.510**	**14**
GMM(FOC-o) γ	**0.500**	**0.489**		**0.500**	**0.490**		**0.500**	**0.497**
	0.193	0.189		0.136	0.134		0.110	0.109
	−0.011	0.193		−0.010	0.137		−0.003	0.110
Sargan, df	**4.093**	**4**		**4.024**	**4**		**3.993**	**4**
GMM(FOC-s) γ	**0.500**	**0.500**		**0.500**	**0.495**		**0.500**	**0.500**
	0.212	0.204		0.149	0.146		0.121	0.119
	0.000	0.212		−0.005	0.149		0.000	0.121
Sargan, df	**4.121**	**4**		**4.052**	**4**		**3.949**	**4**
GMM(FOC-c) γ	**0.500**	**0.462**		**0.500**	**0.477**		**0.500**	**0.488**
	0.183	0.180		0.130	0.127		0.103	0.103
	−0.038	0.187		−0.023	0.132		−0.012	0.103
Sargan, df	**4.179**	**4**		**4.118**	**4**		**4.049**	**4**

Notes: See Notes in Table aa4.

Table aa8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$) (Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(aa)								
GMM(g-STD) γ	**0.500**	**0.458**		**0.500**	**0.496**		**0.500**	**0.499**
	0.100	0.096		0.031	0.031		0.010	0.010
	−0.042	0.108		−0.004	0.032		−0.001	0.010
Sargan, df	**9.941**	**9**		**8.936**	**9**		**8.994**	**9**
GMM(g-SYS) γ	**0.500**	**0.461**		**0.500**	**0.496**		**0.500**	**0.499**
	0.095	0.089		0.030	0.029		0.009	0.009
	−0.039	0.103		−0.004	0.030		−0.001	0.009
Sargan, df	**14.571**	**14**		**13.856**	**14**		**13.881**	**14**
GMM(h-STD) γ	**0.500**	**0.462**		**0.500**	**0.496**		**0.500**	**0.499**
	0.099	0.096		0.031	0.031		0.010	0.010
	−0.038	0.106		−0.004	0.032		−0.001	0.010
Sargan, df	**9.876**	**9**		**8.915**	**9**		**8.981**	**9**
GMM(h-SYS) γ	**0.500**	**0.451**		**0.500**	**0.495**		**0.500**	**0.499**
	0.095	0.092		0.030	0.029		0.009	0.009
	−0.049	0.107		−0.005	0.030		−0.001	0.009
Sargan, df	**14.749**	**14**		**13.919**	**14**		**13.896**	**14**
GMM(FOC-o) γ	**0.500**	**0.494**		**0.500**	**0.500**		**0.500**	**0.500**
	0.094	0.095		0.030	0.030		0.010	0.010
	−0.006	0.094		0.000	0.030		0.000	0.010
Sargan, df	**4.191**	**4**		**3.928**	**4**		**3.992**	**4**
GMM(FOC-s) γ	**0.500**	**0.495**		**0.500**	**0.499**		**0.500**	**0.500**
	0.104	0.103		0.033	0.033		0.010	0.010
	−0.005	0.104		−0.001	0.033		0.000	0.010
Sargan, df	**4.088**	**4**		**3.971**	**4**		**3.992**	**4**
GMM(FOC-c) γ	**0.500**	**0.487**		**0.500**	**0.499**		**0.500**	**0.500**
	0.088	0.089		0.028	0.028		0.009	0.009
	−0.013	0.089		−0.001	0.028		0.000	0.009
Sargan, df	**4.123**	**4**		**3.969**	**4**		**4.013**	**4**

Table aa8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(aa)						
GMM(g-STD) γ						
	−0.53	−0.47	−0.58	−0.47	−0.55	−0.47
		−0.70		−0.72		−0.71
Sargan, df						
GMM(g-SYS) γ						
	−0.47	−0.39	−0.53	−0.43	−0.49	−0.41
		−0.60		−0.66		−0.62
Sargan, df						
GMM(h-STD) γ						
	−0.58	−0.47	−0.55	−0.47	−0.57	−0.47
		−0.70		−0.66		−0.68
Sargan, df						
GMM(h-SYS) γ						
	−0.54	−0.49	−0.58	−0.48	−0.56	−0.49
		−0.71		−0.72		−0.71
Sargan, df						
GMM(FOC-o) γ						
	−0.50	−0.49	−0.53	−0.50	−0.51	−0.50
		−0.50		−0.54		−0.51
Sargan, df						
GMM(FOC-s) γ						
	−0.51	−0.48	−0.50	−0.50	−0.51	−0.49
		−0.51		−0.50		−0.51
Sargan, df						
GMM(FOC-c) γ						
	−0.49	−0.51	−0.58	−0.51	−0.53	−0.51
		−0.50		−0.60		−0.54
Sargan, df						

Notes: See Notes in Table aa4.

Table aa8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (aa): $\gamma=0.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(aa)								
GMM(g-STD) γ								
	-0.50	-0.49		-0.50	-0.50		-0.50	-0.49
		-0.53			-0.50			-0.52
Sargan, df								
GMM(g-SYS) γ								
	-0.50	-0.48		-0.50	-0.50		-0.50	-0.49
		-0.54			-0.50			-0.52
Sargan, df								
GMM(h-STD) γ								
	-0.50	-0.49		-0.50	-0.50		-0.50	-0.49
		-0.52			-0.50			-0.51
Sargan, df								
GMM(h-SYS) γ								
	-0.50	-0.50		-0.50	-0.50		-0.50	-0.50
		-0.55			-0.51			-0.53
Sargan, df								
GMM(FOC-o) γ								
	-0.49	-0.50		-0.50	-0.50		-0.50	-0.50
		-0.49			-0.50			-0.50
Sargan, df								
GMM(FOC-s) γ								
	-0.50	-0.50		-0.50	-0.50		-0.50	-0.50
		-0.50			-0.50			-0.50
Sargan, df								
GMM(FOC-c) γ								
	-0.49	-0.50		-0.50	-0.50		-0.50	-0.50
		-0.50			-0.50			-0.50
Sargan, df								

Table ab8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ab)								
GMM(g-STD) γ	**0.500**	**0.297**		**0.500**	**0.405**		**0.500**	**0.441**
	0.230	0.197		0.159	0.142		0.127	0.118
	−0.203	0.307		−0.095	0.185		−0.059	0.140
Sargan, df	**11.963**	**9**		**10.614**	**9**		**10.030**	**9**
GMM(g-SYS) γ	**0.500**	**0.335**		**0.500**	**0.414**		**0.500**	**0.445**
	0.206	0.168		0.150	0.128		0.121	0.108
	−0.165	0.264		−0.086	0.173		−0.055	0.133
Sargan, df	**15.672**	**14**		**14.904**	**14**		**14.472**	**14**
GMM(h-STD) γ	**0.500**	**0.318**		**0.500**	**0.413**		**0.500**	**0.446**
	0.231	0.197		0.158	0.142		0.126	0.118
	−0.182	0.294		−0.087	0.180		−0.054	0.137
Sargan, df	**11.712**	**9**		**10.476**	**9**		**9.963**	**9**
GMM(h-SYS) γ	**0.500**	**0.278**		**0.500**	**0.389**		**0.500**	**0.429**
	0.224	0.195		0.155	0.139		0.121	0.114
	−0.222	0.315		−0.111	0.190		−0.071	0.140
Sargan, df	**16.181**	**14**		**15.237**	**14**		**14.729**	**14**
GMM(FOC-o) γ	**0.500**	**0.489**		**0.500**	**0.490**		**0.500**	**0.497**
	0.204	0.202		0.149	0.144		0.121	0.117
	−0.011	0.204		−0.010	0.149		−0.003	0.121
Sargan, df	**4.148**	**4**		**4.127**	**4**		**4.080**	**4**
GMM(FOC-s) γ	**0.500**	**0.499**		**0.500**	**0.494**		**0.500**	**0.499**
	0.227	0.218		0.162	0.156		0.129	0.128
	−0.001	0.227		−0.006	0.162		−0.001	0.129
Sargan, df	**4.193**	**4**		**4.120**	**4**		**3.986**	**4**
GMM(FOC-c) γ	**0.500**	**0.456**		**0.500**	**0.473**		**0.500**	**0.486**
	0.198	0.193		0.140	0.136		0.112	0.110
	−0.044	0.203		−0.027	0.142		−0.014	0.113
Sargan, df	**4.278**	**4**		**4.261**	**4**		**4.125**	**4**

Notes: See Notes in Table aa4.

Table ab8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ab)								
GMM(g-STD) γ	**0.500**	**0.454**		**0.500**	**0.497**		**0.500**	**0.499**
	0.108	0.103		0.034	0.033		0.011	0.011
	−0.046	0.117		−0.003	0.034		−0.001	0.011
Sargan, df	**9.963**	**9**		**9.008**	**9**		**8.996**	**9**
GMM(g-SYS) γ	**0.500**	**0.456**		**0.500**	**0.497**		**0.500**	**0.499**
	0.104	0.095		0.032	0.032		0.010	0.010
	−0.044	0.112		−0.003	0.032		−0.001	0.010
Sargan, df	**14.612**	**14**		**14.009**	**14**		**13.924**	**14**
GMM(h-STD) γ	**0.500**	**0.456**		**0.500**	**0.497**		**0.500**	**0.499**
	0.108	0.103		0.034	0.033		0.011	0.011
	−0.044	0.116		−0.003	0.034		−0.001	0.011
Sargan, df	**9.968**	**9**		**8.986**	**9**		**9.032**	**9**
GMM(h-SYS) γ	**0.500**	**0.445**		**0.500**	**0.496**		**0.500**	**0.499**
	0.104	0.099		0.032	0.032		0.010	0.010
	−0.055	0.117		−0.004	0.033		−0.001	0.010
Sargan, df	**14.772**	**14**		**14.020**	**14**		**13.990**	**14**
GMM(FOC-o) γ	**0.500**	**0.495**		**0.500**	**0.501**		**0.500**	**0.500**
	0.102	0.102		0.033	0.032		0.010	0.010
	−0.005	0.102		0.001	0.033		0.000	0.010
Sargan, df	**4.054**	**4**		**3.980**	**4**		**4.020**	**4**
GMM(FOC-s) γ	**0.500**	**0.496**		**0.500**	**0.501**		**0.500**	**0.500**
	0.115	0.111		0.036	0.035		0.011	0.011
	−0.004	0.115		0.001	0.036		0.000	0.011
Sargan, df	**4.018**	**4**		**3.971**	**4**		**4.131**	**4**
GMM(FOC-c) γ	**0.500**	**0.487**		**0.500**	**0.500**		**0.500**	**0.500**
	0.096	0.095		0.031	0.030		0.009	0.010
	−0.013	0.097		0.000	0.031		0.000	0.009
Sargan, df	**4.015**	**4**		**4.015**	**4**		**4.061**	**4**

Table ab8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ab)						
GMM(g-STD) γ						
	−0.53	−0.47	−0.55	−0.47	−0.54	−0.47
		−0.73		−0.69		−0.71
Sargan, df						
GMM(g-SYS) γ						
	−0.46	−0.39	−0.53	−0.43	−0.49	−0.40
		−0.61		−0.65		−0.63
Sargan, df						
GMM(h-STD) γ						
	−0.55	−0.47	−0.56	−0.47	−0.55	−0.47
		−0.70		−0.68		−0.70
Sargan, df						
GMM(h-SYS) γ						
	−0.54	−0.49	−0.60	−0.48	−0.56	−0.49
		−0.73		−0.75		−0.74
Sargan, df						
GMM(FOC-o) γ						
	−0.45	−0.49	−0.52	−0.50	−0.48	−0.49
		−0.45		−0.53		−0.48
Sargan, df						
GMM(FOC-s) γ						
	−0.49	−0.48	−0.55	−0.49	−0.51	−0.49
		−0.49		−0.55		−0.51
Sargan, df						
GMM(FOC-c) γ						
	−0.50	−0.51	−0.56	−0.51	−0.52	−0.51
		−0.51		−0.58		−0.54
Sargan, df						

Notes: See Notes in Table aa4.

Table ab8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=0.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ab)						
GMM(g-STD) γ						
	-0.50	-0.49	-0.50	-0.50	-0.50	-0.49
		-0.54		-0.50		-0.52
Sargan, df						
GMM(g-SYS) γ						
	-0.51	-0.48	-0.50	-0.50	-0.50	-0.49
		-0.54		-0.50		-0.52
Sargan, df						
GMM(h-STD) γ						
	-0.50	-0.49	-0.50	-0.50	-0.50	-0.49
		-0.53		-0.50		-0.52
Sargan, df						
GMM(h-SYS) γ						
	-0.51	-0.49	-0.50	-0.50	-0.51	-0.50
		-0.56		-0.51		-0.53
Sargan, df						
GMM(FOC-o) γ						
	-0.49	-0.50	-0.50	-0.50	-0.50	-0.50
		-0.49		-0.50		-0.50
Sargan, df						
GMM(FOC-s) γ						
	-0.50	-0.50	-0.51	-0.50	-0.51	-0.50
		-0.50		-0.51		-0.51
Sargan, df						
GMM(FOC-c) γ						
	-0.50	-0.50	-0.51	-0.50	-0.50	-0.50
		-0.50		-0.51		-0.51
Sargan, df						

Table ac8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ac)								
GMM(g-STD) γ	**0.500**	**0.265**		**0.500**	**0.391**		**0.500**	**0.431**
	0.256	0.209		0.167	0.150		0.136	0.124
	−0.235	0.348		−0.109	0.199		−0.069	0.153
Sargan, df	**12.193**	**9**		**10.902**	**9**		**10.186**	**9**
GMM(g-SYS) γ	**0.500**	**0.312**		**0.500**	**0.402**		**0.500**	**0.436**
	0.221	0.176		0.160	0.135		0.129	0.113
	−0.188	0.290		−0.098	0.188		−0.064	0.144
Sargan, df	**15.772**	**14**		**15.081**	**14**		**14.491**	**14**
GMM(h-STD) γ	**0.500**	**0.283**		**0.500**	**0.399**		**0.500**	**0.435**
	0.250	0.208		0.167	0.150		0.135	0.124
	−0.217	0.331		−0.101	0.195		−0.065	0.150
Sargan, df	**12.085**	**9**		**10.801**	**9**		**10.157**	**9**
GMM(h-SYS) γ	**0.500**	**0.244**		**0.500**	**0.375**		**0.500**	**0.419**
	0.239	0.207		0.162	0.146		0.129	0.120
	−0.256	0.351		−0.125	0.204		−0.081	0.153
Sargan, df	**16.397**	**14**		**15.411**	**14**		**14.785**	**14**
GMM(FOC-o) γ	**0.500**	**0.486**		**0.500**	**0.490**		**0.500**	**0.495**
	0.219	0.214		0.154	0.152		0.129	0.124
	−0.014	0.220		−0.010	0.155		−0.005	0.129
Sargan, df	**4.102**	**4**		**4.156**	**4**		**4.089**	**4**
GMM(FOC-s) γ	**0.500**	**0.495**		**0.500**	**0.495**		**0.500**	**0.497**
	0.239	0.231		0.171	0.165		0.138	0.135
	−0.005	0.240		−0.005	0.172		−0.003	0.138
Sargan, df	**4.207**	**4**		**4.082**	**4**		**3.980**	**4**
GMM(FOC-c) γ	**0.500**	**0.450**		**0.500**	**0.473**		**0.500**	**0.482**
	0.211	0.204		0.145	0.143		0.119	0.116
	−0.050	0.216		−0.027	0.148		−0.018	0.120
Sargan, df	**4.251**	**4**		**4.236**	**4**		**4.102**	**4**

Notes: See Notes in Table aa4.

Table ac8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$) (Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ac)								
GMM(g-STD) γ	**0.500**	**0.450**		**0.500**	**0.496**		**0.500**	**0.499**
	0.111	0.108		0.035	0.035		0.011	0.011
	−0.050	0.122		−0.004	0.035		−0.001	0.011
Sargan, df	**9.996**	**9**		**9.130**	**9**		**9.180**	**9**
GMM(g-SYS) γ	**0.500**	**0.453**		**0.500**	**0.496**		**0.500**	**0.500**
	0.106	0.100		0.034	0.033		0.010	0.011
	−0.047	0.116		−0.004	0.034		0.000	0.010
Sargan, df	**14.514**	**14**		**14.206**	**14**		**14.111**	**14**
GMM(h-STD) γ	**0.500**	**0.452**		**0.500**	**0.496**		**0.500**	**0.499**
	0.111	0.108		0.035	0.035		0.011	0.011
	−0.048	0.121		−0.004	0.036		−0.001	0.011
Sargan, df	**9.972**	**9**		**9.110**	**9**		**9.188**	**9**
GMM(h-SYS) γ	**0.500**	**0.440**		**0.500**	**0.494**		**0.500**	**0.499**
	0.108	0.104		0.034	0.033		0.010	0.011
	−0.060	0.123		−0.006	0.034		−0.001	0.010
Sargan, df	**14.705**	**14**		**14.204**	**14**		**14.156**	**14**
GMM(FOC-o) γ	**0.500**	**0.496**		**0.500**	**0.500**		**0.500**	**0.500**
	0.105	0.107		0.034	0.034		0.010	0.011
	−0.004	0.105		0.000	0.034		0.000	0.010
Sargan, df	**4.056**	**4**		**4.008**	**4**		**4.042**	**4**
GMM(FOC-s) γ	**0.500**	**0.497**		**0.500**	**0.500**		**0.500**	**0.500**
	0.117	0.117		0.037	0.037		0.012	0.012
	−0.003	0.117		0.000	0.037		0.000	0.012
Sargan, df	**3.990**	**4**		**4.068**	**4**		**4.053**	**4**
GMM(FOC-c) γ	**0.500**	**0.487**		**0.500**	**0.499**		**0.500**	**0.500**
	0.098	0.101		0.032	0.032		0.010	0.010
	−0.013	0.099		−0.001	0.032		0.000	0.010
Sargan, df	**3.998**	**4**		**4.099**	**4**		**3.996**	**4**

Table ac8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ac)						
GMM(g-STD) γ						
	−0.62	−0.48	−0.50	−0.47	−0.57	−0.48
		−0.80		−0.66		−0.75
Sargan, df						
GMM(g-SYS) γ						
	−0.46	−0.39	−0.53	−0.43	−0.49	−0.40
		−0.63		−0.65		−0.64
Sargan, df						
GMM(h-STD) γ						
	−0.58	−0.48	−0.52	−0.47	−0.56	−0.47
		−0.76		−0.65		−0.72
Sargan, df						
GMM(h-SYS) γ						
	−0.57	−0.50	−0.55	−0.49	−0.56	−0.50
		−0.78		−0.71		−0.76
Sargan, df						
GMM(FOC-o) γ						
	−0.51	−0.49	−0.45	−0.50	−0.48	−0.50
		−0.51		−0.45		−0.49
Sargan, df						
GMM(FOC-s) γ						
	−0.48	−0.48	−0.53	−0.50	−0.50	−0.49
		−0.48		−0.53		−0.50
Sargan, df						
GMM(FOC-c) γ						
	−0.54	−0.52	−0.50	−0.51	−0.52	−0.51
		−0.55		−0.52		−0.54
Sargan, df						

Notes: See Notes in Table aa4.

Table ac8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ac): $\gamma=0.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(ac)								
GMM(g-STD) γ								
	-0.50	-0.49		-0.51	-0.50		-0.51	-0.49
		-0.54			-0.51			-0.52
Sargan, df								
GMM(g-SYS) γ								
	-0.50	-0.48		-0.51	-0.50		-0.50	-0.49
		-0.53			-0.51			-0.52
Sargan, df								
GMM(h-STD) γ								
	-0.50	-0.49		-0.51	-0.50		-0.51	-0.49
		-0.53			-0.52			-0.52
Sargan, df								
GMM(h-SYS) γ								
	-0.50	-0.49		-0.51	-0.50		-0.51	-0.50
		-0.56			-0.52			-0.54
Sargan, df								
GMM(FOC-o) γ								
	-0.49	-0.50		-0.51	-0.50		-0.50	-0.50
		-0.49			-0.51			-0.50
Sargan, df								
GMM(FOC-s) γ								
	-0.50	-0.50		-0.51	-0.50		-0.50	-0.50
		-0.50			-0.51			-0.50
Sargan, df								
GMM(FOC-c) γ								
	-0.49	-0.50		-0.51	-0.50		-0.50	-0.50
		-0.49			-0.51			-0.50
Sargan, df								

Table ba8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ba)								
GMM(g-STD) γ	**1.500**	**0.928**		**1.500**	**1.251**		**1.500**	**1.347**
	0.457	0.250		0.240	0.169		0.179	0.144
	−0.572	0.732		−0.249	0.346		−0.153	0.235
Sargan, df	**22.574**	**9**		**18.504**	**9**		**15.518**	**9**
GMM(g-SYS) γ	**1.500**	**0.950**		**1.500**	**1.228**		**1.500**	**1.329**
	0.351	0.221		0.235	0.167		0.178	0.143
	−0.550	0.652		−0.272	0.360		−0.171	0.247
Sargan, df	**25.417**	**14**		**21.197**	**14**		**18.722**	**14**
GMM(h-STD) γ	**1.500**	**1.047**		**1.500**	**1.308**		**1.500**	**1.377**
	0.386	0.234		0.224	0.170		0.175	0.145
	−0.453	0.595		−0.192	0.295		−0.123	0.214
Sargan, df	**20.877**	**9**		**16.546**	**9**		**14.450**	**9**
GMM(h-SYS) γ	**1.500**	**0.997**		**1.500**	**1.282**		**1.500**	**1.358**
	0.369	0.254		0.221	0.178		0.173	0.150
	−0.503	0.624		−0.218	0.310		−0.142	0.224
Sargan, df	**24.317**	**14**		**20.157**	**14**		**18.421**	**14**
GMM(FOC-o) γ	**1.500**	**1.469**		**1.500**	**1.487**		**1.500**	**1.493**
	0.281	0.258		0.199	0.185		0.156	0.152
	−0.031	0.283		−0.013	0.200		−0.007	0.156
Sargan, df	**5.303**	**4**		**4.583**	**4**		**4.464**	**4**
GMM(FOC-s) γ	**1.500**	**1.484**		**1.500**	**1.495**		**1.500**	**1.495**
	0.298	0.272		0.212	0.198		0.168	0.163
	−0.016	0.298		−0.005	0.212		−0.005	0.168
Sargan, df	**4.671**	**4**		**4.368**	**4**		**4.211**	**4**
GMM(FOC-c) γ	**1.500**	**1.439**		**1.500**	**1.477**		**1.500**	**1.485**
	0.281	0.258		0.196	0.183		0.153	0.150
	−0.061	0.287		−0.023	0.197		−0.015	0.154
Sargan, df	**5.936**	**4**		**4.828**	**4**		**4.624**	**4**

Notes: See Notes in Table aa4.

Table ba8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$) (Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ba)								
GMM(g-STD) γ	**1.500**	**1.389**		**1.500**	**1.490**		**1.500**	**1.499**
	0.150	0.128		0.046	0.045		0.015	0.015
	−0.111	0.186		−0.010	0.047		−0.001	0.015
Sargan, df	**14.071**	**9**		**9.599**	**9**		**9.091**	**9**
GMM(g-SYS) γ	**1.500**	**1.373**		**1.500**	**1.489**		**1.500**	**1.499**
	0.152	0.128		0.045	0.045		0.015	0.014
	−0.127	0.198		−0.011	0.047		−0.001	0.015
Sargan, df	**17.611**	**14**		**14.397**	**14**		**14.097**	**14**
GMM(h-STD) γ	**1.500**	**1.406**		**1.500**	**1.490**		**1.500**	**1.499**
	0.146	0.129		0.046	0.045		0.015	0.015
	−0.094	0.174		−0.010	0.047		−0.001	0.015
Sargan, df	**13.051**	**9**		**9.431**	**9**		**9.094**	**9**
GMM(h-SYS) γ	**1.500**	**1.391**		**1.500**	**1.489**		**1.500**	**1.499**
	0.146	0.131		0.045	0.044		0.014	0.014
	−0.109	0.182		−0.011	0.046		−0.001	0.014
Sargan, df	**17.366**	**14**		**14.292**	**14**		**14.101**	**14**
GMM(FOC-o) γ	**1.500**	**1.491**		**1.500**	**1.499**		**1.500**	**1.500**
	0.133	0.132		0.042	0.042		0.014	0.013
	−0.009	0.133		−0.001	0.042		0.000	0.014
Sargan, df	**4.355**	**4**		**4.006**	**4**		**4.022**	**4**
GMM(FOC-s) γ	**1.500**	**1.494**		**1.500**	**1.499**		**1.500**	**1.500**
	0.145	0.142		0.045	0.045		0.015	0.014
	−0.006	0.145		−0.001	0.045		0.000	0.015
Sargan, df	**4.169**	**4**		**4.150**	**4**		**4.127**	**4**
GMM(FOC-c) γ	**1.500**	**1.486**		**1.500**	**1.498**		**1.500**	**1.500**
	0.132	0.130		0.041	0.041		0.013	0.013
	−0.014	0.133		−0.002	0.041		0.000	0.013
Sargan, df	**4.442**	**4**		**4.001**	**4**		**4.039**	**4**

Table ba8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ba)						
GMM(g-STD) γ						
	-0.93	-0.56	-0.73	-0.40	-0.86	-0.50
		-1.08		-0.95		-1.03
Sargan, df						
GMM(g-SYS) γ						
	-0.58	-0.41	-0.68	-0.38	-0.62	-0.40
		-0.86		-0.93		-0.88
Sargan, df						
GMM(h-STD) γ						
	-0.78	-0.46	-0.61	-0.40	-0.72	-0.44
		-1.01		-0.79		-0.93
Sargan, df						
GMM(h-SYS) γ						
	-0.74	-0.51	-0.60	-0.43	-0.69	-0.48
		-1.01		-0.81		-0.93
Sargan, df						
GMM(FOC-o) γ						
	-0.49	-0.47	-0.60	-0.48	-0.53	-0.48
		-0.50		-0.61		-0.54
Sargan, df						
GMM(FOC-s) γ						
	-0.49	-0.46	-0.58	-0.47	-0.52	-0.47
		-0.49		-0.58		-0.52
Sargan, df						
GMM(FOC-c) γ						
	-0.52	-0.50	-0.61	-0.49	-0.55	-0.50
		-0.54		-0.61		-0.57
Sargan, df						

Notes: See Notes in Table aa4.

Table ba8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ba): $\gamma=1.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(ba)								
GMM(g-STD) γ								
	-0.52	-0.45		-0.49	-0.49		-0.50	-0.47
		-0.60			-0.50			-0.55
Sargan, df								
GMM(g-SYS) γ								
	-0.53	-0.45		-0.49	-0.49		-0.51	-0.47
		-0.63			-0.50			-0.56
Sargan, df								
GMM(h-STD) γ								
	-0.50	-0.45		-0.49	-0.49		-0.50	-0.47
		-0.57			-0.50			-0.54
Sargan, df								
GMM(h-SYS) γ								
	-0.51	-0.47		-0.50	-0.50		-0.50	-0.48
		-0.60			-0.51			-0.55
Sargan, df								
GMM(FOC-o) γ								
	-0.50	-0.49		-0.49	-0.50		-0.49	-0.50
		-0.50			-0.49			-0.49
Sargan, df								
GMM(FOC-s) γ								
	-0.51	-0.49		-0.49	-0.50		-0.50	-0.50
		-0.51			-0.49			-0.50
Sargan, df								
GMM(FOC-c) γ								
	-0.50	-0.50		-0.49	-0.50		-0.50	-0.50
		-0.51			-0.49			-0.50
Sargan, df								

Table bb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (bb): $\gamma=1.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bb)								
GMM(g-STD) γ	**1.500**	**0.857**		**1.500**	**1.220**		**1.500**	**1.322**
	0.494	0.266		0.258	0.176		0.190	0.148
	−0.643	0.811		−0.280	0.381		−0.178	0.260
Sargan, df	**23.206**	**9**		**19.505**	**9**		**16.270**	**9**
GMM(g-SYS) γ	**1.500**	**0.899**		**1.500**	**1.203**		**1.500**	**1.305**
	0.351	0.233		0.243	0.175		0.188	0.149
	−0.601	0.696		−0.297	0.384		−0.195	0.271
Sargan, df	**25.723**	**14**		**21.774**	**14**		**19.316**	**14**
GMM(h-STD) γ	**1.500**	**0.941**		**1.500**	**1.265**		**1.500**	**1.341**
	0.440	0.249		0.244	0.174		0.185	0.148
	−0.559	0.711		−0.235	0.338		−0.159	0.244
Sargan, df	**22.930**	**9**		**18.326**	**9**		**15.970**	**9**
GMM(h-SYS) γ	**1.500**	**0.911**		**1.500**	**1.245**		**1.500**	**1.330**
	0.409	0.268		0.234	0.185		0.181	0.155
	−0.589	0.717		−0.255	0.346		−0.170	0.249
Sargan, df	**25.547**	**14**		**21.249**	**14**		**19.171**	**14**
GMM(FOC-o) γ	**1.500**	**1.465**		**1.500**	**1.486**		**1.500**	**1.483**
	0.291	0.270		0.205	0.194		0.163	0.159
	−0.035	0.293		−0.014	0.206		−0.017	0.164
Sargan, df	**5.464**	**4**		**4.635**	**4**		**4.518**	**4**
GMM(FOC-s) γ	**1.500**	**1.481**		**1.500**	**1.492**		**1.500**	**1.487**
	0.312	0.284		0.217	0.206		0.172	0.170
	−0.019	0.313		−0.008	0.217		−0.013	0.173
Sargan, df	**4.726**	**4**		**4.451**	**4**		**4.189**	**4**
GMM(FOC-c) γ	**1.500**	**1.431**		**1.500**	**1.473**		**1.500**	**1.475**
	0.290	0.271		0.202	0.191		0.158	0.156
	−0.069	0.298		−0.027	0.204		−0.025	0.160
Sargan, df	**6.200**	**4**		**4.896**	**4**		**4.638**	**4**

Notes: See Notes in Table aa4.

Table bb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (bb): $\gamma=1.5$, $\sigma_\eta^2=1.0$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bb)								
GMM(g-STD) γ	**1.500**	**1.376**		**1.500**	**1.490**		**1.500**	**1.499**
	0.158	0.132		0.049	0.047		0.016	0.015
	−0.124	0.201		−0.010	0.050		−0.001	0.016
Sargan, df	**14.447**	**9**		**9.756**	**9**		**9.053**	**9**
GMM(g-SYS) γ	**1.500**	**1.360**		**1.500**	**1.488**		**1.500**	**1.499**
	0.160	0.133		0.048	0.047		0.015	0.015
	−0.140	0.212		−0.012	0.050		−0.001	0.015
Sargan, df	**17.742**	**14**		**14.533**	**14**		**14.053**	**14**
GMM(h-STD) γ	**1.500**	**1.388**		**1.500**	**1.491**		**1.500**	**1.499**
	0.158	0.132		0.050	0.047		0.016	0.015
	−0.112	0.194		−0.009	0.051		−0.001	0.016
Sargan, df	**14.259**	**9**		**9.581**	**9**		**9.143**	**9**
GMM(h-SYS) γ	**1.500**	**1.375**		**1.500**	**1.489**		**1.500**	**1.499**
	0.157	0.136		0.048	0.047		0.015	0.015
	−0.125	0.201		−0.011	0.050		−0.001	0.015
Sargan, df	**17.943**	**14**		**14.382**	**14**		**14.133**	**14**
GMM(FOC-o) γ	**1.500**	**1.490**		**1.500**	**1.500**		**1.500**	**1.500**
	0.141	0.139		0.046	0.044		0.014	0.014
	−0.010	0.141		0.000	0.046		0.000	0.014
Sargan, df	**4.335**	**4**		**4.058**	**4**		**4.028**	**4**
GMM(FOC-s) γ	**1.500**	**1.494**		**1.500**	**1.500**		**1.500**	**1.500**
	0.153	0.148		0.049	0.048		0.015	0.015
	−0.006	0.153		0.000	0.049		0.000	0.015
Sargan, df	**4.108**	**4**		**4.133**	**4**		**3.990**	**4**
GMM(FOC-c) γ	**1.500**	**1.485**		**1.500**	**1.499**		**1.500**	**1.500**
	0.140	0.136		0.045	0.043		0.014	0.014
	−0.015	0.141		−0.001	0.045		0.000	0.014
Sargan, df	**4.442**	**4**		**4.088**	**4**		**4.070**	**4**

Table bb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ab): $\gamma=1.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(bb)						
GMM(g-STD) γ						
	-0.94	-0.60	-0.75	-0.42	-0.87	-0.53
		-1.09		-0.94		-1.03
Sargan, df						
GMM(g-SYS) γ						
	-0.53	-0.42	-0.63	-0.40	-0.57	-0.41
		-0.86		-0.86		-0.86
Sargan, df						
GMM(h-STD) γ						
	-0.85	-0.51	-0.67	-0.40	-0.79	-0.47
		-1.07		-0.81		-0.97
Sargan, df						
GMM(h-SYS) γ						
	-0.81	-0.53	-0.63	-0.44	-0.74	-0.50
		-1.05		-0.82		-0.96
Sargan, df						
GMM(FOC-o) γ						
	-0.51	-0.48	-0.57	-0.49	-0.53	-0.48
		-0.51		-0.57		-0.53
Sargan, df						
GMM(FOC-s) γ						
	-0.53	-0.46	-0.57	-0.48	-0.54	-0.47
		-0.53		-0.57		-0.54
Sargan, df						
GMM(FOC-c) γ						
	-0.52	-0.50	-0.61	-0.50	-0.55	-0.50
		-0.55		-0.60		-0.57
Sargan, df						

Notes: See Notes in Table aa4.

Table bb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ab): $\gamma=1.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000			*N*=10,000->100,000			*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)		r(mcsd)	r(mcse) r(rmse)
Simulation(bb)								
GMM(g-STD) γ								
	-0.51	-0.45		-0.50	-0.49		-0.50	-0.47
		-0.60			-0.51			-0.55
Sargan, df								
GMM(g-SYS) γ								
	-0.52	-0.45		-0.50	-0.49		-0.51	-0.47
		-0.63			-0.51			-0.57
Sargan, df								
GMM(h-STD) γ								
	-0.50	-0.44		-0.51	-0.49		-0.50	-0.47
		-0.58			-0.51			-0.55
Sargan, df								
GMM(h-SYS) γ								
	-0.51	-0.47		-0.50	-0.50		-0.51	-0.48
		-0.61			-0.51			-0.56
Sargan, df								
GMM(FOC-o) γ								
	-0.49	-0.49		-0.51	-0.50		-0.50	-0.50
		-0.49			-0.51			-0.50
Sargan, df								
GMM(FOC-s) γ								
	-0.50	-0.49		-0.50	-0.50		-0.50	-0.50
		-0.50			-0.50			-0.50
Sargan, df								
GMM(FOC-c) γ								
	-0.49	-0.50		-0.51	-0.50		-0.50	-0.50
		-0.50			-0.51			-0.50
Sargan, df								

Table bc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bc)								
GMM(g-STD) γ	**1.500**	**0.783**		**1.500**	**1.189**		**1.500**	**1.310**
	0.539	0.280		0.273	0.182		0.200	0.153
	−0.717	0.897		−0.311	0.413		−0.190	0.276
Sargan, df	**23.498**	**9**		**20.171**	**9**		**16.923**	**9**
GMM(g-SYS) γ	**1.500**	**0.854**		**1.500**	**1.181**		**1.500**	**1.294**
	0.369	0.243		0.249	0.181		0.195	0.154
	−0.646	0.744		−0.319	0.405		−0.206	0.284
Sargan, df	**25.531**	**14**		**21.959**	**14**		**19.278**	**14**
GMM(h-STD) γ	**1.500**	**0.847**		**1.500**	**1.223**		**1.500**	**1.325**
	0.505	0.268		0.271	0.180		0.199	0.151
	−0.653	0.826		−0.277	0.387		−0.175	0.265
Sargan, df	**23.689**	**9**		**19.879**	**9**		**17.303**	**9**
GMM(h-SYS) γ	**1.500**	**0.836**		**1.500**	**1.212**		**1.500**	**1.315**
	0.437	0.282		0.254	0.192		0.191	0.160
	−0.664	0.795		−0.288	0.384		−0.185	0.266
Sargan, df	**26.047**	**14**		**22.014**	**14**		**19.812**	**14**
GMM(FOC-o) γ	**1.500**	**1.458**		**1.500**	**1.485**		**1.500**	**1.488**
	0.310	0.281		0.214	0.202		0.171	0.166
	−0.042	0.313		−0.015	0.214		−0.012	0.171
Sargan, df	**5.549**	**4**		**4.680**	**4**		**4.531**	**4**
GMM(FOC-s) γ	**1.500**	**1.475**		**1.500**	**1.493**		**1.500**	**1.492**
	0.326	0.295		0.226	0.214		0.179	0.177
	−0.025	0.327		−0.007	0.226		−0.008	0.180
Sargan, df	**4.841**	**4**		**4.446**	**4**		**4.249**	**4**
GMM(FOC-c) γ	**1.500**	**1.417**		**1.500**	**1.471**		**1.500**	**1.478**
	0.306	0.284		0.210	0.199		0.166	0.163
	−0.083	0.317		−0.029	0.212		−0.022	0.168
Sargan, df	**6.467**	**4**		**4.929**	**4**		**4.715**	**4**

Notes: See Notes in Table aa4.

Table bc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(bc)								
GMM(g-STD) γ	**1.500**	**1.360**		**1.500**	**1.490**		**1.500**	**1.499**
	0.169	0.136		0.050	0.049		0.017	0.016
	−0.140	0.220		−0.010	0.051		−0.001	0.017
Sargan, df	**15.171**	**9**		**9.727**	**9**		**9.168**	**9**
GMM(g-SYS) γ	**1.500**	**1.347**		**1.500**	**1.488**		**1.500**	**1.498**
	0.169	0.138		0.049	0.049		0.016	0.016
	−0.153	0.228		−0.012	0.051		−0.002	0.016
Sargan, df	**18.007**	**14**		**14.524**	**14**		**14.059**	**14**
GMM(h-STD) γ	**1.500**	**1.373**		**1.500**	**1.491**		**1.500**	**1.499**
	0.169	0.135		0.050	0.049		0.016	0.016
	−0.127	0.212		−0.009	0.051		−0.001	0.016
Sargan, df	**15.127**	**9**		**9.692**	**9**		**9.279**	**9**
GMM(h-SYS) γ	**1.500**	**1.364**		**1.500**	**1.489**		**1.500**	**1.499**
	0.165	0.141		0.049	0.049		0.016	0.016
	−0.136	0.214		−0.011	0.050		−0.001	0.016
Sargan, df	**18.372**	**14**		**14.426**	**14**		**14.182**	**14**
GMM(FOC-o) γ	**1.500**	**1.489**		**1.500**	**1.501**		**1.500**	**1.500**
	0.148	0.145		0.046	0.046		0.015	0.015
	−0.011	0.148		0.001	0.046		0.000	0.015
Sargan, df	**4.305**	**4**		**4.096**	**4**		**4.068**	**4**
GMM(FOC-s) γ	**1.500**	**1.492**		**1.500**	**1.501**		**1.500**	**1.500**
	0.159	0.154		0.049	0.049		0.016	0.016
	−0.008	0.159		0.001	0.049		0.000	0.016
Sargan, df	**4.134**	**4**		**4.074**	**4**		**4.018**	**4**
GMM(FOC-c) γ	**1.500**	**1.483**		**1.500**	**1.500**		**1.500**	**1.500**
	0.146	0.142		0.045	0.045		0.015	0.014
	−0.017	0.147		0.000	0.045		0.000	0.015
Sargan, df	**4.413**	**4**		**4.088**	**4**		**4.061**	**4**

Table bc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(bc)						
GMM(g-STD) γ						
	-0.98	-0.62	-0.76	-0.43	-0.90	-0.55
		-1.12		-1.00		-1.07
Sargan, df						
GMM(g-SYS) γ						
	-0.56	-0.43	-0.61	-0.39	-0.58	-0.41
		-0.88		-0.88		-0.88
Sargan, df						
GMM(h-STD) γ						
	-0.90	-0.58	-0.76	-0.42	-0.85	-0.52
		-1.09		-0.93		-1.03
Sargan, df						
GMM(h-SYS) γ						
	-0.78	-0.56	-0.71	-0.45	-0.75	-0.52
		-1.05		-0.91		-1.00
Sargan, df						
GMM(FOC-o) γ						
	-0.53	-0.47	-0.56	-0.49	-0.54	-0.48
		-0.54		-0.56		-0.55
Sargan, df						
GMM(FOC-s) γ						
	-0.53	-0.46	-0.57	-0.48	-0.54	-0.47
		-0.53		-0.57		-0.54
Sargan, df						
GMM(FOC-c) γ						
	-0.55	-0.51	-0.57	-0.50	-0.56	-0.50
		-0.58		-0.57		-0.58
Sargan, df						

Notes: See Notes in Table aa4.

Table bc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (bc): $\gamma=1.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(bc)						
GMM(g-STD) γ						
	-0.53	-0.44	-0.48	-0.49	-0.50	-0.47
		-0.63		-0.49		-0.56
Sargan, df						
GMM(g-SYS) γ						
	-0.53	-0.45	-0.48	-0.49	-0.51	-0.47
		-0.65		-0.49		-0.57
Sargan, df						
GMM(h-STD) γ						
	-0.53	-0.44	-0.49	-0.49	-0.51	-0.46
		-0.62		-0.50		-0.56
Sargan, df						
GMM(h-SYS) γ						
	-0.53	-0.46	-0.49	-0.50	-0.51	-0.48
		-0.63		-0.50		-0.56
Sargan, df						
GMM(FOC-o) γ						
	-0.50	-0.49	-0.49	-0.50	-0.50	-0.50
		-0.51		-0.49		-0.50
Sargan, df						
GMM(FOC-s) γ						
	-0.51	-0.49	-0.48	-0.50	-0.50	-0.50
		-0.51		-0.48		-0.50
Sargan, df						
GMM(FOC-c) γ						
	-0.51	-0.50	-0.49	-0.50	-0.50	-0.50
		-0.51		-0.49		-0.50
Sargan, df						

Table ca8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ca)								
GMM(g-STD) γ	**2.500**	**0.383**		**2.500**	**1.276**		**2.500**	**1.747**
	1.146	1.260		0.842	0.410		0.544	0.226
	−2.117	2.407		−1.224	1.486		−0.753	0.929
Sargan, df	**36.440**	**9**		**46.444**	**9**		**45.899**	**9**
GMM(g-SYS) γ	**2.500**	**0.657**		**2.500**	**1.191**		**2.500**	**1.575**
	0.790	0.678		0.790	0.700		0.720	0.439
	−1.843	2.005		−1.309	1.529		−0.925	1.172
Sargan, df	**46.860**	**14**		**60.245**	**14**		**58.549**	**14**
GMM(h-STD) γ	**2.500**	**0.869**		**2.500**	**1.617**		**2.500**	**1.915**
	0.945	4.997		0.623	0.295		0.436	0.206
	−1.631	1.884		−0.883	1.081		−0.585	0.729
Sargan, df	**36.214**	**9**		**42.759**	**9**		**42.092**	**9**
GMM(h-SYS) γ	**2.500**	**0.559**		**2.500**	**1.509**		**2.500**	**1.870**
	0.983	1.628		0.645	0.378		0.440	0.253
	−1.941	2.176		−0.991	1.183		−0.630	0.768
Sargan, df	**43.087**	**14**		**47.131**	**14**		**43.831**	**14**
GMM(FOC-o) γ	**2.500**	**2.230**		**2.500**	**2.417**		**2.500**	**2.460**
	0.477	0.475		0.353	0.319		0.290	0.257
	−0.270	0.548		−0.083	0.362		−0.040	0.292
Sargan, df	**16.449**	**4**		**12.063**	**4**		**8.746**	**4**
GMM(FOC-s) γ	**2.500**	**2.326**		**2.500**	**2.449**		**2.500**	**2.466**
	0.462	0.431		0.361	0.318		0.302	0.266
	−0.174	0.494		−0.051	0.364		−0.034	0.304
Sargan, df	**9.487**	**4**		**7.495**	**4**		**6.105**	**4**
GMM(FOC-c) γ	**2.500**	**2.051**		**2.500**	**2.366**		**2.500**	**2.437**
	0.431	0.556		0.334	0.330		0.287	0.260
	−0.449	0.622		−0.134	0.359		−0.063	0.294
Sargan, df	**22.219**	**4**		**16.310**	**4**		**11.012**	**4**

Notes: See Notes in Table aa4.

Table ca8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(ca)								
GMM(g-STD) γ	**2.500**	**1.958**		**2.500**	**2.462**		**2.500**	**2.496**
	0.408	0.185		0.091	0.079		0.028	0.028
	−0.542	0.679		−0.038	0.099		−0.004	0.028
Sargan, df	**44.389**	**9**		**12.526**	**9**		**9.254**	**9**
GMM(g-SYS) γ	**2.500**	**1.835**		**2.500**	**2.458**		**2.500**	**2.496**
	0.597	0.315		0.092	0.082		0.028	0.028
	−0.665	0.894		−0.042	0.101		−0.004	0.028
Sargan, df	**52.832**	**14**		**16.003**	**14**		**14.018**	**14**
GMM(h-STD) γ	**2.500**	**2.087**		**2.500**	**2.464**		**2.500**	**2.497**
	0.342	0.180		0.088	0.080		0.028	0.027
	−0.413	0.536		−0.036	0.095		−0.003	0.029
Sargan, df	**38.140**	**9**		**11.836**	**9**		**9.144**	**9**
GMM(h-SYS) γ	**2.500**	**2.069**		**2.500**	**2.462**		**2.500**	**2.497**
	0.332	0.211		0.088	0.082		0.028	0.027
	−0.431	0.544		−0.038	0.096		−0.003	0.028
Sargan, df	**38.510**	**14**		**15.716**	**14**		**13.976**	**14**
GMM(FOC-o) γ	**2.500**	**2.481**		**2.500**	**2.497**		**2.500**	**2.500**
	0.250	0.225		0.078	0.076		0.025	0.024
	−0.019	0.251		−0.003	0.078		0.000	0.025
Sargan, df	**7.481**	**4**		**4.182**	**4**		**4.014**	**4**
GMM(FOC-s) γ	**2.500**	**2.484**		**2.500**	**2.496**		**2.500**	**2.500**
	0.255	0.235		0.081	0.079		0.025	0.025
	−0.016	0.255		−0.004	0.081		0.000	0.025
Sargan, df	**5.846**	**4**		**4.102**	**4**		**3.948**	**4**
GMM(FOC-c) γ	**2.500**	**2.471**		**2.500**	**2.496**		**2.500**	**2.500**
	0.248	0.225		0.078	0.075		0.024	0.024
	−0.029	0.250		−0.004	0.078		0.000	0.024
Sargan, df	**8.667**	**4**		**4.202**	**4**		**4.048**	**4**

Table ca8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(ca)						
GMM(g-STD) γ						
	-0.44	-1.62	-1.08	-1.47	-0.68	-1.56
		-0.70		-1.16		-0.87
Sargan, df						
GMM(g-SYS) γ						
	0.00	0.05	-0.23	-1.15	-0.08	-0.40
		-0.39		-0.65		-0.49
Sargan, df						
GMM(h-STD) γ						
	-0.60	-4.08	-0.88	-0.89	-0.70	-2.90
		-0.80		-0.97		-0.86
Sargan, df						
GMM(h-SYS) γ						
	-0.61	-2.11	-0.94	-0.99	-0.73	-1.70
		-0.88		-1.06		-0.95
Sargan, df						
GMM(FOC-o) γ						
	-0.43	-0.58	-0.49	-0.53	-0.45	-0.56
		-0.60		-0.53		-0.57
Sargan, df						
GMM(FOC-s) γ						
	-0.36	-0.44	-0.43	-0.44	-0.39	-0.44
		-0.44		-0.44		-0.44
Sargan, df						
GMM(FOC-c) γ						
	-0.37	-0.75	-0.37	-0.58	-0.37	-0.69
		-0.79		-0.50		-0.68
Sargan, df						

Notes: See Notes in Table aa4.

Table ca8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (ca): $\gamma=2.5$, $\sigma_\eta^2=0.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(ca)						
GMM(g-STD) γ						
	-0.65	-0.37	-0.51	-0.46	-0.58	-0.41
		-0.84		-0.54		-0.69
Sargan, df						
GMM(g-SYS) γ						
	-0.81	-0.58	-0.52	-0.47	-0.67	-0.53
		-0.95		-0.55		-0.75
Sargan, df						
GMM(h-STD) γ						
	-0.59	-0.36	-0.49	-0.46	-0.54	-0.41
		-0.75		-0.52		-0.64
Sargan, df						
GMM(h-SYS) γ						
	-0.58	-0.41	-0.50	-0.48	-0.54	-0.45
		-0.75		-0.53		-0.64
Sargan, df						
GMM(FOC-o) γ						
	-0.51	-0.47	-0.50	-0.50	-0.50	-0.48
		-0.51		-0.50		-0.50
Sargan, df						
GMM(FOC-s) γ						
	-0.50	-0.47	-0.50	-0.50	-0.50	-0.48
		-0.50		-0.50		-0.50
Sargan, df						
GMM(FOC-c) γ						
	-0.50	-0.48	-0.50	-0.50	-0.50	-0.49
		-0.51		-0.50		-0.51
Sargan, df						

Table cb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cb)								
GMM(g-STD) γ	**2.500**	**0.352**		**2.500**	**1.287**		**2.500**	**1.717**
	1.209	2.748		0.798	0.366		0.574	0.236
	−2.148	2.465		−1.213	1.452		−0.783	0.971
Sargan, df	**36.661**	**9**		**46.970**	**9**		**47.513**	**9**
GMM(g-SYS) γ	**2.500**	**0.635**		**2.500**	**1.238**		**2.500**	**1.587**
	0.796	0.646		0.677	0.428		0.652	0.393
	−1.865	2.028		−1.262	1.432		−0.913	1.122
Sargan, df	**46.111**	**14**		**56.906**	**14**		**56.818**	**14**
GMM(h-STD) γ	**2.500**	**0.696**		**2.500**	**1.472**		**2.500**	**1.835**
	1.028	1.205		0.715	0.313		0.500	0.209
	−1.804	2.076		−1.028	1.252		−0.665	0.832
Sargan, df	**37.155**	**9**		**47.170**	**9**		**46.756**	**9**
GMM(h-SYS) γ	**2.500**	**0.494**		**2.500**	**1.460**		**2.500**	**1.857**
	0.996	1.157		0.641	0.353		0.415	0.240
	−2.006	2.239		−1.040	1.221		−0.643	0.766
Sargan, df	**42.496**	**14**		**48.452**	**14**		**45.024**	**14**
GMM(FOC-o) γ	**2.500**	**2.218**		**2.500**	**2.416**		**2.500**	**2.451**
	0.493	0.521		0.345	0.314		0.287	0.257
	−0.282	0.568		−0.084	0.355		−0.049	0.291
Sargan, df	**16.449**	**4**		**11.946**	**4**		**8.967**	**4**
GMM(FOC-s) γ	**2.500**	**2.314**		**2.500**	**2.440**		**2.500**	**2.457**
	0.464	0.437		0.353	0.319		0.292	0.266
	−0.186	0.500		−0.060	0.358		−0.043	0.296
Sargan, df	**9.594**	**4**		**7.489**	**4**		**6.461**	**4**
GMM(FOC-c) γ	**2.500**	**2.048**		**2.500**	**2.361**		**2.500**	**2.428**
	0.426	0.562		0.332	0.330		0.281	0.260
	−0.452	0.621		−0.139	0.360		−0.072	0.290
Sargan, df	**21.953**	**4**		**16.138**	**4**		**11.367**	**4**

Notes: See Notes in Table aa4.

Table cb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cb)								
GMM(g-STD) γ	**2.500**	**1.935**		**2.500**	**2.463**		**2.500**	**2.495**
	0.449	0.190		0.091	0.079		0.028	0.028
	−0.565	0.722		−0.037	0.098		−0.005	0.028
Sargan, df	**45.640**	**9**		**12.908**	**9**		**9.277**	**9**
GMM(g-SYS) γ	**2.500**	**1.842**		**2.500**	**2.459**		**2.500**	**2.495**
	0.551	0.272		0.091	0.083		0.028	0.028
	−0.658	0.858		−0.041	0.100		−0.005	0.028
Sargan, df	**51.069**	**14**		**16.123**	**14**		**14.164**	**14**
GMM(h-STD) γ	**2.500**	**2.030**		**2.500**	**2.463**		**2.500**	**2.497**
	0.388	0.175		0.089	0.078		0.027	0.027
	−0.470	0.609		−0.037	0.096		−0.003	0.028
Sargan, df	**43.200**	**9**		**12.616**	**9**		**9.394**	**9**
GMM(h-SYS) γ	**2.500**	**2.053**		**2.500**	**2.462**		**2.500**	**2.496**
	0.338	0.205		0.088	0.082		0.027	0.027
	−0.447	0.560		−0.038	0.096		−0.004	0.027
Sargan, df	**40.072**	**14**		**16.031**	**14**		**14.273**	**14**
GMM(FOC-o) γ	**2.500**	**2.478**		**2.500**	**2.498**		**2.500**	**2.499**
	0.251	0.226		0.079	0.076		0.024	0.024
	−0.022	0.252		−0.002	0.079		−0.001	0.024
Sargan, df	**7.328**	**4**		**4.211**	**4**		**4.074**	**4**
GMM(FOC-s) γ	**2.500**	**2.483**		**2.500**	**2.497**		**2.500**	**2.499**
	0.258	0.234		0.081	0.079		0.025	0.025
	−0.017	0.258		−0.003	0.081		−0.001	0.025
Sargan, df	**5.792**	**4**		**4.121**	**4**		**4.058**	**4**
GMM(FOC-c) γ	**2.500**	**2.468**		**2.500**	**2.498**		**2.500**	**2.499**
	0.250	0.226		0.079	0.076		0.024	0.024
	−0.032	0.252		−0.002	0.079		−0.001	0.024
Sargan, df	**8.534**	**4**		**4.199**	**4**		**4.115**	**4**

Table cb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(cb)						
GMM(g-STD) γ						
	−0.60	−2.91	−0.81	−1.09	−0.68	−2.24
		−0.76		−0.99		−0.85
Sargan, df						
GMM(g-SYS) γ						
	−0.23	−0.59	−0.09	−0.21	−0.18	−0.45
		−0.50		−0.60		−0.54
Sargan, df						
GMM(h-STD) γ						
	−0.52	−1.94	−0.88	−1.00	−0.66	−1.59
		−0.73		−1.01		−0.83
Sargan, df						
GMM(h-SYS) γ						
	−0.63	−1.71	−1.07	−0.96	−0.80	−1.43
		−0.87		−1.15		−0.98
Sargan, df						
GMM(FOC-o) γ						
	−0.51	−0.73	−0.45	−0.49	−0.49	−0.64
		−0.68		−0.49		−0.61
Sargan, df						
GMM(FOC-s) γ						
	−0.39	−0.45	−0.46	−0.45	−0.42	−0.45
		−0.48		−0.47		−0.48
Sargan, df						
GMM(FOC-c) γ						
	−0.36	−0.77	−0.41	−0.58	−0.38	−0.70
		−0.79		−0.53		−0.69
Sargan, df						

Notes: See Notes in Table aa4.

Table cb8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (cb): $\gamma=2.5$, $\sigma_\eta^2=1.0$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(cb)						
GMM(g-STD) γ						
	-0.69	-0.38	-0.51	-0.46	-0.60	-0.42
		-0.87		-0.54		-0.70
Sargan, df						
GMM(g-SYS) γ						
	-0.78	-0.52	-0.52	-0.47	-0.65	-0.50
		-0.93		-0.55		-0.74
Sargan, df						
GMM(h-STD) γ						
	-0.64	-0.35	-0.51	-0.46	-0.58	-0.40
		-0.80		-0.54		-0.67
Sargan, df						
GMM(h-SYS) γ						
	-0.58	-0.40	-0.51	-0.48	-0.55	-0.44
		-0.76		-0.55		-0.66
Sargan, df						
GMM(FOC-o) γ						
	-0.50	-0.47	-0.52	-0.50	-0.51	-0.48
		-0.50		-0.52		-0.51
Sargan, df						
GMM(FOC-s) γ						
	-0.50	-0.47	-0.51	-0.50	-0.51	-0.48
		-0.51		-0.51		-0.51
Sargan, df						
GMM(FOC-c) γ						
	-0.50	-0.48	-0.52	-0.50	-0.51	-0.49
		-0.51		-0.52		-0.51
Sargan, df						

Table cc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)

	N=250			*N*=500			*N*=750	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cc)								
GMM(g-STD) γ	**2.500**	**0.315**		**2.500**	**1.236**		**2.500**	**1.673**
	1.195	1.232		0.826	0.360		0.601	0.234
	−2.185	2.491		−1.264	1.510		−0.827	1.023
Sargan, df	**36.455**	**9**		**47.793**	**9**		**49.077**	**9**
GMM(g-SYS) γ	**2.500**	**0.625**		**2.500**	**1.226**		**2.500**	**1.567**
	0.784	0.583		0.688	0.488		0.660	0.476
	−1.875	2.032		−1.274	1.448		−0.933	1.143
Sargan, df	**44.655**	**14**		**56.200**	**14**		**55.931**	**14**
GMM(h-STD) γ	**2.500**	**0.572**		**2.500**	**1.376**		**2.500**	**1.748**
	1.044	0.818		0.753	0.327		0.551	0.213
	−1.928	2.192		−1.124	1.353		−0.752	0.933
Sargan, df	**37.187**	**9**		**49.148**	**9**		**51.164**	**9**
GMM(h-SYS) γ	**2.500**	**0.433**		**2.500**	**1.400**		**2.500**	**1.806**
	1.049	1.399		0.706	0.628		0.471	0.250
	−2.067	2.318		−1.100	1.307		−0.694	0.839
Sargan, df	**41.704**	**14**		**48.989**	**14**		**46.759**	**14**
GMM(FOC-o) γ	**2.500**	**2.218**		**2.500**	**2.408**		**2.500**	**2.454**
	0.484	0.493		0.352	0.321		0.292	0.262
	−0.282	0.560		−0.092	0.364		−0.046	0.296
Sargan, df	**16.431**	**4**		**12.585**	**4**		**9.140**	**4**
GMM(FOC-s) γ	**2.500**	**2.303**		**2.500**	**2.440**		**2.500**	**2.462**
	0.467	0.443		0.359	0.322		0.301	0.270
	−0.197	0.507		−0.060	0.364		−0.038	0.303
Sargan, df	**9.741**	**4**		**7.833**	**4**		**6.494**	**4**
GMM(FOC-c) γ	**2.500**	**2.036**		**2.500**	**2.347**		**2.500**	**2.430**
	0.425	0.570		0.334	0.339		0.287	0.265
	−0.464	0.629		−0.153	0.368		−0.070	0.295
Sargan, df	**21.966**	**4**		**17.215**	**4**		**11.603**	**4**

Notes: See Notes in Table aa4.

Table cc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)

	N=1,000			*N*=10,000			*N*=100,000	
	true	**mcm**		**true**	**mcm**		**true**	**mcm**
	mcsd	mcse		mcsd	mcse		mcsd	mcse
	bias	rmse		bias	rmse		bias	rmse
Simulation(cc)								
GMM(g-STD) γ	**2.500**	**1.900**		**2.500**	**2.464**		**2.500**	**2.495**
	0.472	0.279		0.093	0.080		0.029	0.028
	−0.600	0.764		−0.036	0.100		−0.005	0.029
Sargan, df	**47.168**	**9**		**12.997**	**9**		**9.349**	**9**
GMM(g-SYS) γ	**2.500**	**1.830**		**2.500**	**2.460**		**2.500**	**2.494**
	0.513	0.270		0.094	0.084		0.028	0.028
	−0.670	0.844		−0.040	0.102		−0.006	0.029
Sargan, df	**50.737**	**14**		**16.010**	**14**		**14.124**	**14**
GMM(h-STD) γ	**2.500**	**1.970**		**2.500**	**2.461**		**2.500**	**2.496**
	0.423	0.174		0.091	0.079		0.028	0.028
	−0.530	0.678		−0.039	0.099		−0.004	0.029
Sargan, df	**47.740**	**9**		**13.260**	**9**		**9.354**	**9**
GMM(h-SYS) γ	**2.500**	**2.022**		**2.500**	**2.461**		**2.500**	**2.495**
	0.338	0.205		0.090	0.083		0.028	0.028
	−0.478	0.585		−0.039	0.098		−0.005	0.029
Sargan, df	**42.332**	**14**		**16.077**	**14**		**14.106**	**14**
GMM(FOC-o) γ	**2.500**	**2.473**		**2.500**	**2.499**		**2.500**	**2.499**
	0.250	0.229		0.080	0.077		0.025	0.025
	−0.027	0.252		−0.001	0.080		−0.001	0.025
Sargan, df	**7.417**	**4**		**4.228**	**4**		**4.045**	**4**
GMM(FOC-s) γ	**2.500**	**2.478**		**2.500**	**2.498**		**2.500**	**2.499**
	0.257	0.237		0.082	0.080		0.026	0.026
	−0.022	0.258		−0.002	0.082		−0.001	0.026
Sargan, df	**5.925**	**4**		**4.085**	**4**		**4.112**	**4**
GMM(FOC-c) γ	**2.500**	**2.462**		**2.500**	**2.498**		**2.500**	**2.499**
	0.249	0.229		0.080	0.077		0.025	0.024
	−0.038	0.252		−0.002	0.080		−0.001	0.025
Sargan, df	**8.652**	**4**		**4.223**	**4**		**4.055**	**4**

Table cc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=250,500,750$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=250->500		*N*=500->750		*N*=250->750	
	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)	r(mcsd)	r(mcse)
		r(rmse)		r(rmse)		r(rmse)
Simulation(cc)						
GMM(g-STD) γ						
	-0.53	-1.77	-0.78	-1.06	-0.63	-1.51
		-0.72		-0.96		-0.81
Sargan, df						
GMM(g-SYS) γ						
	-0.19	-0.26	-0.10	-0.06	-0.16	-0.18
		-0.49		-0.58		-0.52
Sargan, df						
GMM(h-STD) γ						
	-0.47	-1.32	-0.77	-1.06	-0.58	-1.22
		-0.70		-0.92		-0.78
Sargan, df						
GMM(h-SYS) γ						
	-0.57	-1.16	-1.00	-2.27	-0.73	-1.57
		-0.83		-1.09		-0.93
Sargan, df						
GMM(FOC-o) γ						
	-0.46	-0.62	-0.45	-0.51	-0.46	-0.58
		-0.62		-0.51		-0.58
Sargan, df						
GMM(FOC-s) γ						
	-0.38	-0.46	-0.44	-0.44	-0.40	-0.45
		-0.48		-0.45		-0.47
Sargan, df						
GMM(FOC-c) γ						
	-0.35	-0.75	-0.38	-0.60	-0.36	-0.70
		-0.78		-0.54		-0.69
Sargan, df						

Notes: See Notes in Table aa4.

Table cc8. Monte Carlo results for the dynamic fixed effects logit model with neither explanatory variables nor time dummies when $T=8$ (and $N=1000,10000,100000$)
(Case of Simulation (cc): $\gamma=2.5$, $\sigma_\eta^2=1.5$)
[Convergence rate]

	N=1,000->10,000		*N*=10,000->100,000		*N*=1,000->100,000	
	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)	r(mcsd)	r(mcse) r(rmse)
Simulation(cc)						
GMM(g-STD) γ						
	-0.70	-0.54	-0.51	-0.45	-0.61	-0.50
		-0.88		-0.53		-0.71
Sargan, df						
GMM(g-SYS) γ						
	-0.74	-0.51	-0.52	-0.48	-0.63	-0.49
		-0.92		-0.55		-0.73
Sargan, df						
GMM(h-STD) γ						
	-0.67	-0.35	-0.50	-0.45	-0.59	-0.40
		-0.84		-0.54		-0.69
Sargan, df						
GMM(h-SYS) γ						
	-0.58	-0.39	-0.50	-0.47	-0.54	-0.43
		-0.78		-0.54		-0.66
Sargan, df						
GMM(FOC-o) γ						
	-0.50	-0.47	-0.51	-0.50	-0.50	-0.48
		-0.50		-0.50		-0.50
Sargan, df						
GMM(FOC-s) γ						
	-0.49	-0.47	-0.51	-0.50	-0.50	-0.48
		-0.49		-0.51		-0.50
Sargan, df						
GMM(FOC-c) γ						
	-0.50	-0.47	-0.51	-0.50	-0.50	-0.49
		-0.50		-0.51		-0.50
Sargan, df						