Online Appendix: A Generalized Model of Misclassification Errors and Labor Force Dynamics

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Abstract

This appendix accompanies the paper entitled "A Generalized Model of Misclassification Errors and Labor Force Dynamics" by Shuaizhang Feng, Yingyao Hu and Jiandong Sun. Section A describes the 4-8-4 rotating design in the Current Population Surveys (CPS). Section B provides a detailed proof of Theorem 1 in the paper. Section C considers a specification when further relaxing Assumptions 1 and 2. Section D evaluates Assumptions 1 and 2 in the paper through Monte Carlo simulations. Section E tests Assumption 3 in the paper directly using the CPS data. Section F provides a procedure of correcting gross labor flows with the framework in Feng and Hu (2013). Additional results are presented in Section G.

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A The 4-8-4 Rotating Structure of the Current Population Survey

The Current Population Survey (CPS) is the primary source of labor force statistics for the civilian population of the United States. For each month, the sample size in recent years is around 60,000 households or 100,000 adults. The CPS has a 4-8-4 rotating panel structure with all sampled individuals scheduled to appear eight times in total, as illustrated in Table A1. For example, cohort A entered in period $t-2$ for the first time and is denoted as A_1, and it stayed in the sample for period $t-1$ (A_2), period t (A_3), period $t+1$ (A_4), and idled for eight periods from $t+2$ to $t+9$, before re-appearing in period $t+10$ as A_5, then in period $t+11$ as A_6, in period $t+12$ as A_7, and finally in period $t+13$ as A_8. Such a 4-8-4 rotating structure enables us to obtain the joint distribution of five-period labor force statuses, which is required for the estimation using our proposed identification strategy.

Table A1: The 4-8-4 rotating structure in the CPS

Period	Month-in-sample							
	1	2	3	4	5	6	7	8
$t-2$	A_1							
$t-1$	B_1	A_2						
t	C_1	B_2	A_3					
$t+1$	D_1	C_2	B_3	A_4				
$t+2$	E_1	D_2	C_3	B_4				
$t+3$	F_1	E_2	D_3	C_4				
$t+4$	G_1	F_2	E_3	D_4				
$t+5$	H_1	G_2	F_3	E_4				
$t+6$	I_1	H_2	G_3	F_4				
$t+7$	J_1	I_2	H_3	G_4				
$t+8$	K_1	J_2	I_3	H_4				
$t+9$	L_1	K_2	J_3	I_4				
$t+10$	M_1	L_2	K_3	J_4	A_5			
$t+11$	N_1	M_2	L_3	K_4	B_5	A_6		
$t+12$	O_1	N_2	M_3	L_4	C_5	B_6	A_7	
$t+13$	P_1	O_2	N_3	M_4	D_5	C_6	B_7	A_8

Note: Each letter represents a cohort, and the subscript represents month-in-sample. So each entry represents a different rotation group in a given calendar month.

B Proof of Theorem 1

This section provides a formal proof of Theorem 1, which states that under Assumptions 1 to 7 in the paper, the misclassification probabilities in periods t and $t+1$, i.e., $\Pr(S_t|S_t^*, S_{t-1}, \mathbf{X})$ and $\Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right)$, as well as the labor force transition probabilities, i.e., $\Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, \mathbf{X}\right)$, are uniquely identified from the observed joint distribution of five-period matched reported labor force status, i.e., $\Pr(S_{t+10}, S_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X})$, through the eigenvalue-eigenvector decomposition method proposed in Hu (2008).

Assumption 1 is imposed on the misclassification process, which allows for the correlation between the reported statuses across two consecutive months even conditional on the current true status, that is,

$$\Pr\left(S_t|S_t^*, \{S_\tau^*, S_\tau\}_{\tau\leq t-1}, \mathbf{X}\right) = \Pr(S_t|S_t^*, S_{t-1}, \mathbf{X}). \quad (1)$$

Note that respondents are not interviewed for those drop-out periods, implying that the reported status may only depend on the true status for incoming rotation groups (i.e., rotation groups one and five). That is, for $i \in \{t-2, t+10\}$,

$$\Pr\left(S_i|S_i^*, \{S_\tau^*, S_\tau\}_{\tau\leq i-1}, \mathbf{X}\right) = \Pr(S_i|S_i^*, \mathbf{X}). \quad (2)$$

Assumption 2 allows for the non-Markovian nature of true labor force dynamics by including a lag of reported status in the true labor force transition across periods t and $t+p$, that is,

$$\Pr\left(S_{t+p}^*| \{S_\tau^*, S_\tau\}_{\tau\leq t}, \mathbf{X}\right) = \Pr\left(S_{t+p}^*|S_t^*, S_{t-1}, \mathbf{X}\right). \quad (3)$$

In fact, the sufficient conditions we need are

$$\Pr\left(S_{t+10}^*|S_{t+1}, S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) = \Pr\left(S_{t+10}^*|S_{t+1}^*, S_t, \mathbf{X}\right), \quad (4)$$

and

$$\Pr\left(S_{t+1}^*|S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) = \Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, \mathbf{X}\right). \quad (5)$$

Under Assumptions 1 and 2, we derive the following joint distribution:

$$
\begin{aligned}
& \Pr\left(S_{t+10}, S_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S_{t+10}^*, S_{t+1}^*, S_t^*} \Pr\left(S_{t+10}, S_{t+10}^*, S_{t+1}, S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S_{t+10}^*, S_{t+1}^*, S_t^*} \Pr\left(S_{t+10}|S_{t+10}^*, S_{t+1}, S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \times \\
& \Pr\left(S_{t+10}^*|S_{t+1}, S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_{t+1}|S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \times \\
& \Pr\left(S_{t+1}^*|S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t|S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t^*, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S_{t+1}^*, S_t^*} \left(\sum_{S_{t+10}^*} \Pr\left(S_{t+10}|S_{t+10}^*, \mathbf{X}\right) \Pr\left(S_{t+10}^*|S_{t+1}^*, S_t, \mathbf{X}\right) \right) \Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right) \times \\
& \Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, \mathbf{X}\right) \Pr\left(S_t|S_t^*, S_{t-1}, \mathbf{X}\right) \Pr\left(S_t^*, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S_{t+1}^*, S_t^*} \Pr\left(S_{t+10}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, \mathbf{X}\right) \times \\
& \Pr\left(S_t|S_t^*, S_{t-1}, \mathbf{X}\right) \Pr\left(S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) \\
= & \sum_{S_{t+1}^*} \Pr\left(S_{t+10}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right) \times \\
& \left(\sum_{S_t^*} \Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, \mathbf{X}\right) \Pr\left(S_t|S_t^*, S_{t-1}, \mathbf{X}\right) \Pr\left(S_t^*, S_{t-1}, S_{t-2}|\mathbf{X}\right) \right) \\
= & \sum_{S_{t+1}^*} \Pr\left(S_{t+10}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}^*, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right). \qquad (6)
\end{aligned}
$$

This means that, if S_t and S_{t-1} are fixed, we may apply the identification strategy in Hu (2008) to identify the unknown conditional distributions on the right-hand side of Equation (6). Integrating out S_{t+10}, we have

$$
\Pr\left(S_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) = \sum_{S_{t+1}^*} \Pr\left(S_{t+1}|S_{t+1}^*, S_t, \mathbf{X}\right) \Pr\left(S_{t+1}^*, S_t, S_t, S_{t-2}|\mathbf{X}\right). \qquad (7)
$$

Given $S_{t+10} = 1$, $S_t = s_t$, $S_{t-1} = s_{t-1}$ and $\mathbf{X} = \mathbf{x}$, we define the following matrices:

$$
\begin{aligned}
M_{1,S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} & \equiv \left[\Pr\left(S_{t+10} = 1, S_{t+1} = i, S_t = s_t, S_{t-1} = s_{t-1}, S_{t-2} = j|\mathbf{x}\right)\right]_{i,j}, \\
M_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} & \equiv \left[\Pr\left(S_{t+1} = i, S_t = s_t, S_{t-1} = s_{t-1}, S_{t-2} = j|\mathbf{x}\right)\right]_{i,j}, \\
D_{1|S_{t+1}^*,s_t,\mathbf{x}} & \equiv Diag\left[\Pr\left(S_{t+10} = 1|S_{t+1}^* = j, S_t = s_t, \mathbf{x}\right)\right]_j, \\
M_{S_{t+1}|S_{t+1}^*,s_t,\mathbf{x}} & \equiv \left[\Pr\left(S_{t+1} = i|S_{t+1}^* = j, S_t = s_t, \mathbf{x}\right)\right]_{i,j}, \\
M_{S_{t+1}^*,s_t,s_{t-1},S_{t-2}|\mathbf{x}} & \equiv \left[\Pr\left(S_{t+1}^* = i, S_t = s_t, S_{t-1} = s_{t-1}, S_{t-2} = j|\mathbf{x}\right)\right]_{i,j}.
\end{aligned}
$$

As shown in Hu (2008), Equations (6) and (7) imply the following two matrix equations:

$$
M_{1,S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} = M_{S_{t+1}|S_{t+1}^*,s_t,\mathbf{x}} D_{1|S_{t+1}^*,s_t,\mathbf{x}} M_{S_{t+1}^*,s_t,s_{t-1},S_{t-2}|\mathbf{x}} \qquad (8)
$$

and

$$
M_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} = M_{S_{t+1}|S_{t+1}^*,s_t,\mathbf{x}} M_{S_{t+1}^*,s_t,s_{t-1},S_{t-2}|\mathbf{x}}. \qquad (9)
$$

Assumption 3 implies that the observed matrix $M_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}}$ is invertible, which can be tested using real data. We then can derive the following equation:

$$
\begin{aligned}
& M_{1,S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} M^{-1}_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} \\
= \; & M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}} D_{1|S^*_{t+1},s_t,\mathbf{x}} M_{S^*_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} \left(M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}} M_{S^*_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} \right)^{-1} \\
= \; & M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}} D_{1|S^*_{t+1},s_t,\mathbf{x}} M^{-1}_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}}. \qquad (10)
\end{aligned}
$$

Equation (10) implies that the observed matrix on the left-hand side has an eigen-decomposition on the right-hand side, where the three diagonal entries in $D_{1|S^*_{t+1},s_t,\mathbf{x}}$ are three eigenvalues, and the three columns in $M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}}$ are the corresponding three eigenvectors. Note that each column of $M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}}$ is a conditional distribution, so that the entries in each column sum to 1, implying that the eigenvectors are normalized. Assumption 4 implies that the eigenvalues are distinctive, thus the eigenvectors are linearly independent and can be uniquely identified.

Assumption 5 specifies the re-ordering rule of eigenvectors. In particular, if the current true labor force status is the same as the previously-reported status, individuals are always more likely to report that status than if the true status is otherwise. Furthermore, if the current true status is different from the previously-reported status, then the least possible choice to report would be the status other than the current true status or the previously-reported status. Under this rule, the ordering of the eigenvectors is determined and the the eigenvector matrix $M_{S_{t+1}|S^*_{t+1},s_t,\mathbf{x}}$ is uniquely identified from the eigen-decomposition of the observed matrix $M_{1,S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}} M^{-1}_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}}$.

Given that $\Pr\left(S_{t+1}|S^*_{t+1},S_t,\mathbf{X}\right)$ has been identified, we may identify $\Pr\left(S^*_{t+1},S_t,S_{t-1},S_{t-2}|\mathbf{X}\right)$ from Equation (7). To further identify $\Pr\left(S_t|S^*_t,S_{t-1},\mathbf{X}\right)$ and $\Pr\left(S^*_{t+1}|S^*_t,S_{t-1},\mathbf{X}\right)$, we apply similar strategy to the following equations:

$$
\Pr\left(S^*_{t+1},S_t,S_{t-1},S_{t-2}|\mathbf{X}\right) = \sum_{S^*_t} \Pr\left(S^*_{t+1}|S^*_t,S_{t-1},\mathbf{X}\right) \Pr\left(S_t|S^*_t,S_{t-1},\mathbf{X}\right) \Pr\left(S^*_t,S_{t-1},S_{t-2}|\mathbf{X}\right), \qquad (11)
$$

and

$$
\Pr\left(S_t,S_{t-1},S_{t-2}|\mathbf{X}\right) = \sum_{S^*_t} \Pr\left(S_t|S^*_t,S_{t-1},\mathbf{X}\right) \Pr\left(S^*_t,S_{t-1},S_{t-2}|\mathbf{X}\right). \qquad (12)
$$

Given $S^*_{t+1}=1$, $S_{t-1}=s_{t-1}$, and $\mathbf{X}=\mathbf{x}$, Equations (11) and (12) also imply the following two matrix equations:

$$
M_{1,S_t,s_{t-1},S_{t-2}|\mathbf{x}} = M_{S_t|S^*_t,s_{t-1},\mathbf{x}} D_{1|S^*_t,s_{t-1},\mathbf{x}} M_{S^*_t,s_{t-1},S_{t-2}|\mathbf{x}} \qquad (13)
$$

and

$$
M_{S_t,s_{t-1},S_{t-2}|\mathbf{x}} = M_{S_t|S^*_t,s_{t-1},\mathbf{x}} M_{S^*_t,s_{t-1},S_{t-2}|\mathbf{x}}, \qquad (14)
$$

where

$$
\begin{aligned}
M_{1,S_t,s_{t-1},S_{t-2}|\mathbf{x}} &\equiv \left[\Pr\left(S^*_{t+1}=1,S_t=i,S_{t-1}=s_{t-1},S_{t-2}=j|\mathbf{x}\right)\right]_{i,j}, \\
M_{S_t,s_{t-1},S_{t-2}|\mathbf{x}} &\equiv \left[\Pr\left(S_t=i,S_{t-1}=s_{t-1},S_{t-2}=j|\mathbf{x}\right)\right]_{i,j}, \\
D_{1|S^*_t,s_{t-1},\mathbf{x}} &\equiv \mathit{Diag}\left[\Pr\left(S^*_{t+1}=1|S^*_t=j,S_{t-1}=s_{t-1},\mathbf{x}\right)\right]_{j}, \\
M_{S_t|S^*_t,s_{t-1},\mathbf{x}} &\equiv \left[\Pr\left(S_t=i|S^*_t=j,S_{t-1}=s_{t-1},\mathbf{x}\right)\right]_{i,j}, \\
M_{S^*_t,s_{t-1},S_{t-2}|\mathbf{x}} &\equiv \left[\Pr\left(S^*_t=i,S_{t-1}=s_{t-1},S_{t-2}=j|\mathbf{x}\right)\right]_{i,j}.
\end{aligned}
$$

Under Assumption 6, we eliminate $M_{S_t^*,s_{t-1},S_{t-2}|\mathbf{x}}$ in Equations (13) and (14) as follows:

$$\begin{aligned} & M_{1,S_t,s_{t-1},S_{t-2}|\mathbf{x}} M_{S_t,s_{t-1},S_{t-2}|\mathbf{x}}^{-1} \\ = \;& M_{S_t|S_t^*,s_{t-1},\mathbf{x}} D_{1|S_t^*,s_{t-1},\mathbf{x}} M_{S_t^*,s_{t-1},S_{t-2}|\mathbf{x}} \left(M_{S_t|S_t^*,s_{t-1},\mathbf{x}} M_{S_t^*,s_{t-1},S_{t-2}|\mathbf{x}} \right)^{-1} \\ = \;& M_{S_t|S_t^*,s_{t-1},\mathbf{x}} D_{1|S_t^*,s_{t-1},\mathbf{x}} M_{S_t|S_t^*,s_{t-1},\mathbf{x}}^{-1}. \end{aligned} \tag{15}$$

Assumption 7 ensures that $M_{S_t|S_t^*,s_{t-1},\mathbf{x}}$ and $D_{1|S_t^*,s_{t-1},\mathbf{x}}$ can be uniquely identified using the eigen-decomposition. Again, we use Assumption 5 to re-arrange the orderings of the eigenvectors and the corresponding eigenvalues. After applying the same procedures to subsamples with $S_{t+1}^* \in \{1,2,3\}$, the transition probabilities with a lagged reported status, i.e., $\Pr\left(S_{t+1}^*|S_t^*, s_{t-1}, \mathbf{x}\right)$, are identified. *Q.E.D.*

C Relaxing Assumptions 1 and 2 by Adding One More Lag

Regarding the misclassification process and the underlying true labor force dynamics, we propose the following two assumptions in the paper:

Assumption 1. *Conditional on observed characteristics $\boldsymbol{X}$, the reported status in the current month (S_t) only depends on the true status in the current month (S_t^*) and the reported status in the previous month (S_{t-1}), i.e.,*

$$\Pr\left(S_t|S_t^*, \{S_\tau^*, S_\tau\}_{\tau\leq t-1}, \boldsymbol{X}\right) = \Pr\left(S_t|S_t^*, S_{t-1}, \boldsymbol{X}\right). \tag{16}$$

Assumption 2. *Conditional on observed characteristics $\boldsymbol{X}$, the true status in the current month (S_t^*) and the reported status in the previous month (S_{t-1}), the true or reported statuses in other months have no predictive power on the true status k months later (S_{t+p}^*). That is, for $p \geq 1$,*

$$\Pr\left(S_{t+p}^*|\{S_\tau^*, S_\tau\}_{\tau\leq t}, \boldsymbol{X}\right) = \Pr\left(S_{t+p}^*|S_t^*, S_{t-1}, \boldsymbol{X}\right). \tag{17}$$

In this section, we consider a case where both the misclassification process and the underlying true labor force transition are generalized to be dependent on one more lag of the reported labor force status than our proposed assumptions. That is,

Assumption 1′. *Conditional on observed characteristics $\boldsymbol{X}$, the reported status in the current month (S_t) only depends on the true status in the current month (S_t^*) and the reported status in the previous two months (S_{t-1} and S_{t-2}), i.e.,*

$$\Pr\left(S_t|S_t^*, \{S_\tau^*, S_\tau\}_{\tau\leq t-1}, \boldsymbol{X}\right) = \Pr\left(S_t|S_t^*, S_{t-1}, S_{t-2}, \boldsymbol{X}\right). \tag{18}$$

Assumption 2′. *Conditional on observed characteristics $\boldsymbol{X}$, the true status in the current month (S_t^*) and the reported status in the previous two months (S_{t-1} and S_{t-2}), the true or reported statuses in other months have no predictive power on the true status k months later (S_{t+p}^*). That is, for $p \geq 1$,*

$$\Pr\left(S_{t+p}^*|\{S_\tau^*, S_\tau\}_{\tau\leq t}, \boldsymbol{X}\right) = \Pr\left(S_{t+p}^*|S_t^*, S_{t-1}, S_{t-2}, \boldsymbol{X}\right). \tag{19}$$

In this case, the sufficient conditions we need are

$$\Pr\left(S_{t+10}^*|S_{t+1}, S_{t+1}^*, S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) = \Pr\left(S_{t+10}^*|S_{t+1}^*, S_t, S_{t-1}, \mathbf{X}\right), \tag{20}$$

and

$$\Pr\left(S_{t+1}^*|S_t, S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right) = \Pr\left(S_{t+1}^*|S_t^*, S_{t-1}, S_{t-2}, \mathbf{X}\right). \tag{21}$$

Under the new Assumptions 1' and 2', the joint distribution can be derived as follows:

$$
\begin{aligned}
& \Pr\left(S_{t+10}, S_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_{t+10}, S^*_{t+1}, S^*_t} \Pr\left(S_{t+10}, S^*_{t+10}, S_{t+1}, S^*_{t+1}, S_t, S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_{t+10}, S^*_{t+1}, S^*_t} \Pr\left(S_{t+10}|S^*_{t+10}, S_{t+1}, S^*_{t+1}, S_t, S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \times \\
& \Pr\left(S^*_{t+10}|S_{t+1}, S^*_{t+1}, S_t, S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \times \\
& \Pr\left(S^*_{t+1}|S_t, S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_{t+1}, S^*_t} \left(\sum_{S^*_{t+10}} \Pr\left(S_{t+10}|S^*_{t+10}, \mathbf{X}\right) \Pr\left(S^*_{t+10}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right)\right) \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \times \\
& \Pr\left(S^*_{t+1}|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_{t+1}, S^*_t} \Pr\left(S_{t+10}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \Pr\left(S^*_{t+1}|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \times \\
& \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_{t+1}} \Pr\left(S_{t+10}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \times \\
& \left(\sum_{S^*_t} \Pr\left(S^*_{t+1}|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right)\right) \\
= & \sum_{S^*_{t+1}} \Pr\left(S_{t+10}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right) \Pr\left(S^*_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right). \qquad (22)
\end{aligned}
$$

This means that, given $S_t = s_t$ and $S_{t-1} = s_{t-1}$, we may apply the identification strategy in Hu (2008) to identify the unknown conditional distributions on the right-hand side of Equation (22).

The problem is that we cannot use Hu (2008) in the second step anymore, i.e.,

$$
\begin{aligned}
& \Pr\left(S^*_{t+1}, S_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_t} \Pr\left(S^*_{t+1}|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) \Pr\left(S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \\
= & \sum_{S^*_t} \Pr\left(S^*_{t+1}, S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right) \Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right), \qquad (23)
\end{aligned}
$$

because the number of restrictions is smaller than that of unknowns. However, since the misclassification probabilities in period $t+1$, i.e., $\Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right)$, have been identified from the first step, we may identify $\Pr\left(S^*_{t+1}, S^*_t, S_{t-1}, S_{t-2}|\mathbf{X}\right)$ from Equation (23) if assuming stationarity on the misclassification probabilities, i.e.,

$$\Pr\left(S_t|S^*_t, S_{t-1}, S_{t-2}, \mathbf{X}\right) = \Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}, \mathbf{X}\right). \qquad (24)$$

It is worth noting that, given the 4-8-4 rotating structure, this is the most general setting under which we can still show identification with the conditional independence assumption, and adding more lags will lose the identification arguments. However, since we now include one more lag in the conditional probabilities, there will be much more estimation burden if we control for as many observed characteristics as the baseline setting. Therefore, in this case we only control for dummy variables for business cycle and gender.

Tables C1 and C2 show the results for the misclassification probabilities including one more lag of the reported status. Since in this setting we need to impose the stationarity restriction, the misclassification probabilities in periods t and $t+1$ are almost the same. In Panels A-C, it is clearly shown that the misclassification probabilities are different when further conditional on one more lag of the reported status, meaning that the earlier reports may still have impacts on the current misreporting behavior. Nonetheless, the orderings of the columns of the misclassification probabilities almost satisfy the Assumption 5, except for a few matrices. In Panel D, we also report the misclassification probabilities after integrating out the extra lag, showing quite similar numbers and consistent patterns with our baseline results in Panel E, but in general they have larger standard errors. In the last row of Table 5 in the paper, we present the corrected transition probabilities under this setting, which also show more fluidity in labor force transition than the reported ones, confirming the robustness of our main results.

Table C1: Misclassification probabilities with more lags, $\Pr(S_t|S_t^*, S_{t-1}, S_{t-2})$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
Panel A: $\Pr(S_t=i|S_t^*=j, S_{t-1}=k, S_{t-2}=E)$									
$i=E$	99.2	81.7	70.4	67.9	21.4	26.3	59.2	31.3	14.4
	(0.04)	(1.01)	(0.62)	(2.62)	(3.77)	(2.86)	(1.08)	(3.06)	(0.69)
$i=U$	0.4	13.4	2.5	26.6	66.9	24.7	4.5	26.1	1.6
	(0.02)	(0.89)	(0.20)	(2.21)	(3.27)	(2.71)	(0.77)	(2.30)	(0.35)
$i=N$	0.4	4.9	27.1	5.5	11.8	49.1	36.3	42.5	84.0
	(0.03)	(0.38)	(0.64)	(0.88)	(1.27)	(2.77)	(0.78)	(2.57)	(0.83)
Panel B: $\Pr(S_t=i|S_t^*=j, S_{t-1}=k, S_{t-2}=U)$									
$i=E$	88.4	62.9	71.7	40.2	2.4	6.8	42.1	3.1	3.8
	(0.84)	(4.66)	(5.45)	(0.89)	(0.53)	(0.59)	(1.92)	(1.22)	(0.60)
$i=U$	9.4	25.8	5.4	51.7	90.5	43.3	24.0	56.9	9.7
	(1.11)	(1.55)	(2.49)	(1.09)	(1.06)	(1.47)	(2.04)	(2.54)	(1.38)
$i=N$	2.2	11.4	22.9	8.2	7.1	49.9	33.9	40.0	86.5
	(0.69)	(4.53)	(3.35)	(0.50)	(0.97)	(1.37)	(1.82)	(2.31)	(1.51)
Panel C: $\Pr(S_t=i|S_t^*=j, S_{t-1}=k, S_{t-2}=N)$									
$i=E$	86.9	72.8	45.5	45.3	10.3	3.7	30.9	7.7	0.6
	(0.61)	(3.75)	(1.00)	(2.90)	(3.28)	(1.29)	(0.74)	(1.29)	(0.02)
$i=U$	1.9	15.1	2.0	28.3	70.2	27.6	2.0	22.1	0.3
	(0.25)	(1.97)	(0.26)	(3.08)	(3.17)	(1.62)	(0.67)	(1.01)	(0.02)
$i=N$	11.2	12.0	52.5	26.4	19.5	68.8	67.1	70.3	99.1
	(0.54)	(2.74)	(1.07)	(1.86)	(1.97)	(1.51)	(0.49)	(0.93)	(0.03)
Panel D: Integrating out S_{t-2}, $\Pr(S_t=i|S_t^*=j, S_{t-1}=k)$									
$i=E$	99.0	79.6	66.8	48.4	8.0	8.3	40.8	9.8	1.2
	(0.04)	(1.08)	(0.64)	(0.88)	(1.33)	(0.83)	(1.02)	(1.06)	(0.04)
$i=U$	0.5	14.5	2.5	41.2	81.4	34.9	4.8	26.8	0.5
	(0.03)	(0.91)	(0.21)	(0.84)	(1.38)	(1.15)	(0.48)	(1.13)	(0.04)
$i=N$	0.6	5.9	30.7	10.5	10.7	56.8	54.4	63.4	98.4
	(0.03)	(0.50)	(0.66)	(0.62)	(0.72)	(1.15)	(0.87)	(0.88)	(0.06)
Panel E: Baseline results, $\Pr(S_t=i|S_t^*=j, S_{t-1}=k)$									
$i=E$	98.2	77.5	65.2	48.4	9.8	10.9	35.5	8.3	1.4
	(0.02)	(0.82)	(0.31)	(0.73)	(0.28)	(0.32)	(0.33)	(0.31)	(0.02)
$i=U$	0.6	15.3	3.6	40.6	74.8	41.8	5.4	32.5	0.9
	(0.01)	(0.60)	(0.12)	(0.67)	(0.34)	(0.46)	(0.21)	(0.59)	(0.02)
$i=N$	1.1	7.3	31.2	11.0	15.4	47.4	59.1	59.2	97.7
	(0.01)	(0.30)	(0.32)	(0.30)	(0.27)	(0.50)	(0.29)	(0.62)	(0.03)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table C2: Misclassification probabilities with more lags, $\Pr\left(S_{t+1}|S^*_{t+1}, S_t, S_{t-1}\right)$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
Panel A: $\Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k, S_{t-1}=E\right)$									
$i=E$	99.2	81.7	70.4	67.9	21.5	26.2	59.3	31.1	14.4
	(0.04)	(1.01)	(0.62)	(2.56)	(3.71)	(2.85)	(1.06)	(3.03)	(0.68)
$i=U$	0.4	13.5	2.5	26.6	66.7	24.7	4.4	25.9	1.6
	(0.02)	(0.89)	(0.20)	(2.16)	(3.21)	(2.69)	(0.77)	(2.30)	(0.36)
$i=N$	0.4	4.8	27.1	5.5	11.8	49.0	36.2	43.0	84.0
	(0.03)	(0.39)	(0.64)	(0.87)	(1.27)	(2.78)	(0.77)	(2.59)	(0.83)
Panel B: $\Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k, S_{t-1}=U\right)$									
$i=E$	88.4	62.9	71.6	40.1	2.4	6.8	42.1	3.1	3.8
	(0.84)	(4.64)	(5.51)	(0.89)	(0.53)	(0.59)	(1.91)	(1.23)	(0.61)
$i=U$	9.3	25.7	5.4	51.8	90.5	43.2	24.0	56.7	9.7
	(1.10)	(1.53)	(2.50)	(1.08)	(1.05)	(1.47)	(2.01)	(2.53)	(1.36)
$i=N$	2.2	11.3	22.9	8.1	7.1	50.0	33.9	40.2	86.5
	(0.70)	(4.55)	(3.39)	(0.49)	(0.95)	(1.36)	(1.79)	(2.30)	(1.50)
Panel C: $\Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k, S_{t-1}=N\right)$									
$i=E$	87.0	72.7	45.5	45.4	10.1	3.7	31.0	7.7	0.6
	(0.59)	(3.76)	(0.98)	(2.93)	(3.26)	(1.29)	(0.73)	(1.28)	(0.02)
$i=U$	1.8	15.3	1.9	28.3	70.5	27.5	2.0	22.0	0.3
	(0.25)	(1.94)	(0.26)	(3.11)	(3.18)	(1.62)	(0.67)	(1.01)	(0.02)
$i=N$	11.2	12.0	52.5	26.3	19.4	68.9	67.0	70.3	99.1
	(0.54)	(2.76)	(1.04)	(1.86)	(1.98)	(1.50)	(0.49)	(0.92)	(0.03)
Panel D: Integrating out S_{t-1}, $\Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k\right)$									
$i=E$	98.9	79.9	66.4	48.3	7.8	7.9	39.7	9.7	1.0
	(0.04)	(1.06)	(0.67)	(0.89)	(1.26)	(0.78)	(0.89)	(1.04)	(0.03)
$i=U$	0.5	14.3	2.6	40.8	81.7	34.9	4.3	26.6	0.4
	(0.02)	(0.89)	(0.21)	(0.84)	(1.33)	(1.13)	(0.47)	(1.11)	(0.03)
$i=N$	0.6	5.7	31.0	10.9	10.5	57.2	56.0	63.7	98.6
	(0.03)	(0.45)	(0.66)	(0.63)	(0.72)	(1.10)	(0.68)	(0.87)	(0.04)
Panel E: Baseline results, $\Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k\right)$									
$i=E$	98.8	73.3	55.7	58.6	8.0	9.4	45.9	7.8	0.9
	(0.02)	(0.45)	(0.28)	(0.46)	(0.41)	(0.31)	(0.26)	(0.35)	(0.01)
$i=U$	0.4	19.7	2.4	32.5	79.8	26.4	4.7	39.2	0.5
	(0.01)	(0.34)	(0.09)	(0.42)	(0.52)	(0.45)	(0.14)	(0.43)	(0.01)
$i=N$	0.7	7.0	41.9	8.9	12.2	64.2	49.4	53.0	98.6
	(0.01)	(0.23)	(0.29)	(0.27)	(0.27)	(0.48)	(0.24)	(0.48)	(0.02)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

D Monte Carlo Simulations

D.1 Consistencies under the generalized and the restrictive DGPs

In this subsection, we perform Monte Carlo simulations to show the consistencies of our estimators under a generalized data generating process (DGP) which satisfies all the maintained assumptions, and a restrictive DGP which imposes strong assumptions.

Case 1 In a generalized case, we let the DGP satisfy the assumptions proposed in this paper. That is, both the misclassification process and the dynamics of underlying true labor force status can be influenced by the previous reported status. Besides, the the misclassification process is nonstationary.

Case 2 In a more restrictive case, we let the DGP satisfy the assumptions widely-used in previous methods, where the misclassification process satisfies the Independent Classification Errors (ICE) assumption and is stationary across periods, and the latent labor force status follows the first-order Markov process.

For each case, we show three estimators. The first one is directly calculated from mismeasured data, which ignores the misclassification errors. The second one is based on the restrictive method with strong assumptions imposed, i.e., the ICE assumption, the stationarity assumption, and the first-order Markov assumption. The third one is based on our proposed method. For each estimator, we report the Root Mean Squared Error (RMSE), the average bias, and the mean and the standard deviation of the estimates over the replications.

Table D1 presents the simulation results for Case 1. The reported transition probabilities are all significantly biased, and the restrictive method produces even larger biases because it correct for bias in a restrictive way. On the contrary, our method substantially reduces biases, although the standard deviations of the estimates are much larger. Overall, in terms of the MSEs, our estimators perform much better than the restrictive ones. For Case 2 where the DGP satisfies the strong assumptions, Table D2 shows that both our proposed method and the restrictive one perform well in correcting for biases in the transition probabilities. As expected, in this case, the MSEs of our estimators are in general slightly larger than the restrictive ones.

Table D1: Simulation results of transition probabilities, Case 1

	$\Pr(\mathscr{S}_{t+1}=i \mid \mathscr{S}_t=j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.0	4.1	3.9	36.0	39.2	24.8	6.1	4.8	89.1
Reported									
Mean	94.9	2.0	3.1	25.9	49.1	25.0	4.9	3.5	91.7
Bias	2.9	-2.2	-0.8	-10.1	9.9	0.2	-1.2	-1.3	2.5
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	2.9	2.2	0.8	10.1	9.9	0.5	1.3	1.3	2.5
Corrected-Restrictive									
Mean	97.7	1.3	1.0	16.4	73.3	10.3	1.3	1.9	96.8
Bias	5.8	-2.8	-3.0	-19.6	34.2	-14.5	-4.8	-2.9	7.7
SD	0.1	0.1	0.1	0.6	0.8	0.7	0.1	0.1	0.1
RMSE	5.8	2.8	3.0	19.7	34.2	14.6	4.8	2.9	7.7
Corrected									
Mean	92.2	4.0	3.9	36.4	38.3	25.2	6.1	4.8	89.1
Bias	0.2	-0.2	-0.0	0.4	-0.8	0.4	0.0	0.0	-0.0
SD	1.1	0.8	0.7	6.9	5.5	4.8	1.3	1.1	2.0
RMSE	1.1	0.8	0.7	6.9	5.6	4.8	1.3	1.1	2.0

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D2: Simulation results of transition probabilities, Case 2

	$\Pr(\mathscr{S}_{t+1}=i \mid \mathscr{S}_t=j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	98.0	1.0	1.0	10.0	85.0	5.0	1.5	0.5	98.0
Reported									
Mean	93.8	2.3	3.9	31.4	44.0	24.6	6.7	3.1	90.2
Bias	-4.2	1.3	2.9	21.4	-41.0	19.6	5.2	2.6	-7.8
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	4.2	1.3	2.9	21.4	41.0	19.6	5.2	2.6	7.8
Corrected-Restrictive									
Mean	98.0	1.0	1.0	10.0	85.0	5.0	1.5	0.5	98.0
Bias	-0.0	0.0	0.0	0.0	-0.0	0.0	0.0	-0.0	-0.0
SD	0.1	0.1	0.1	0.8	1.2	0.8	0.1	0.1	0.1
RMSE	0.1	0.1	0.1	0.8	1.2	0.8	0.1	0.1	0.1
Corrected									
Mean	98.0	1.0	1.0	10.1	84.9	5.0	1.5	0.5	98.0
Bias	0.0	0.0	-0.0	0.1	-0.1	-0.0	0.0	-0.0	-0.0
SD	0.1	0.1	0.1	1.2	1.5	0.8	0.1	0.1	0.1
RMSE	0.1	0.1	0.1	1.2	1.5	0.8	0.1	0.1	0.1

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

D.2 Checking the robustness of Assumption 1

In this subsection, we perform simulations to evaluate the robustness of our proposed estimators when Assumption 1 deviates as follows.

Case 3 The misclassification probabilities depend on not only the previous reported status S_{t-1}, but also the previous true status S^*_{t-1}. That is,

$$\begin{aligned}\Pr\left(S_t|S^*_t, \{S_\tau, S^*_\tau\}_{\tau\leq t-1}, \mathbf{X}\right) &= \Pr\left(S_t|S^*_t, S_{t-1}, S^*_{t-1}, \mathbf{X}\right)\\ &\neq \Pr\left(S_t|S^*_t, S_{t-1}, \mathbf{X}\right).\end{aligned}$$

In matrix notation, we let

$$M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}} = \left[\begin{array}{ccc} M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}=1} & M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}=2} & M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}=3}\end{array}\right].$$

There are so many ways of deviating from $M_{S_t|S^*_t,S_{t-1}}$ to $M_{S_t|S^*_t,S_{t-1},S^*_{t-1}}$ that we cannot show all the cases. In our simulation, the misclassification probabilities matrix $M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}=l}$ is generated by letting the entries in $M_{S_t|S^*_t,S_{t-1}=k}$ deviate according to the confidence intervals in the baseline setting. For each $S_{t-1}=k$, let the original

$$M_{S_t|S^*_t,S_{t-1}=k} = \begin{bmatrix} m_{1|1,k} & m_{1|2,k} & m_{1|3,k}\\ m_{2|1,k} & m_{2|2,k} & m_{2|3,k}\\ m_{3|1,k} & m_{3|2,k} & m_{3|3,k}\end{bmatrix},$$

and $\left[\underline{m}_{i|j,k}, \overline{m}_{i|j,k}\right]$ be the corresponding 95% confidence interval of the entry $m_{i|j,k}$. Define

$$\begin{aligned}\underline{M_{S_t|S^*_t,S_{t-1}=k}} &= \begin{bmatrix} 1-\underline{m}_{2|1,k}-\underline{m}_{3|1,k} & \underline{m}_{1|2,k} & \underline{m}_{1|3,k}\\ \underline{m}_{2|1,k} & 1-\underline{m}_{1|2,k}-\underline{m}_{3|2,k} & \underline{m}_{2|3,k}\\ \underline{m}_{3|1,k} & \underline{m}_{3|2,k} & 1-\underline{m}_{1|3,k}-\underline{m}_{2|3,k}\end{bmatrix},\\ \overline{M_{S_t|S^*_t,S_{t-1}=k}} &= \begin{bmatrix} 1-\overline{m}_{2|1,k}-\overline{m}_{3|1,k} & \overline{m}_{1|2,k} & \overline{m}_{1|3,k}\\ \overline{m}_{2|1,k} & 1-\overline{m}_{1|2,k}-\overline{m}_{3|2,k} & \overline{m}_{2|3,k}\\ \overline{m}_{3|1,k} & \overline{m}_{3|2,k} & 1-\overline{m}_{1|3,k}-\overline{m}_{2|3,k}\end{bmatrix},\end{aligned}$$

which are the two deviated misclassification probabilities matrices generated by allowing the off-diagonal entries to deviate to the upper and the lower bounds of their 95% confidence intervals, respectively. In general, we consider the following deviation:

$$M_{S_t|S^*_t,S_{t-1}=k,S^*_{t-1}=l} = (1-\lambda_{k,l})\underline{M_{S_t|S^*_t,S_{t-1}=k}} + \lambda_{k,l}\overline{M_{S_t|S^*_t,S_{t-1}=k}},$$

with the degree of deviation determined by $\Lambda = \{\lambda_{1,1}, \lambda_{1,2}, \lambda_{1,3}, \lambda_{2,1}, \lambda_{2,2}, \lambda_{2,3}, \lambda_{3,1}, \lambda_{3,2}, \lambda_{3,3}\}$. In our analysis, we choose two sets of possible values for $\lambda_{k,l}$, i.e., $\{0, 0.5, 1\}$ and $\{-0.5, 0.5, 1.5\}$, with the latter allowing for slightly more deviations. Tables D3–D10 show that, even when Assumption 1 is violated to some extent, the results based on our proposed method are still acceptable. Additionally, our proposed estimators consistently outperform the restrictive ones.

Table D3: Simulation results of transition probabilities, Case 3 with $\Lambda = \{0.5, 1, 0.5, 0, 0.5, 0, 0.5, 1, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.0	4.1	4.0	36.5	38.6	24.9	6.2	4.8	89.0
Reported									
Mean	94.7	2.1	3.2	25.9	48.7	25.4	5.0	3.5	91.5
Bias	2.7	-2.0	-0.7	-10.6	10.1	0.5	-1.3	-1.2	2.5
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	2.7	2.0	0.7	10.6	10.1	0.7	1.3	1.2	2.5
Corrected-Restrictive									
Mean	97.6	1.4	1.0	14.6	73.4	12.0	1.3	2.1	96.6
Bias	5.7	-2.6	-3.0	-21.9	34.9	-13.0	-4.9	-2.7	7.6
SD	0.1	0.1	0.1	0.7	1.0	0.7	0.1	0.1	0.1
RMSE	5.7	2.6	3.0	21.9	34.9	13.0	4.9	2.7	7.6
Corrected									
Mean	92.6	3.4	4.0	36.8	39.5	23.7	5.8	3.6	90.6
Bias	0.6	-0.7	0.1	0.3	1.0	-1.2	-0.4	-1.2	1.6
SD	1.3	0.9	0.7	6.0	5.3	4.9	1.0	1.3	1.8
RMSE	1.4	1.2	0.7	6.0	5.4	5.1	1.1	1.7	2.4

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D4: Simulation results of transition probabilities, Case 3 with $\Lambda = \{1, 0.5, 0, 1, 0, 0.5, 1, 0.5, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.2	4.0	3.9	37.3	37.9	24.8	6.3	4.7	89.0
Reported									
Mean	94.9	2.0	3.1	26.3	47.4	26.3	4.9	3.4	91.7
Bias	2.7	-1.9	-0.7	-10.9	9.5	1.5	-1.4	-1.3	2.6
SD	0.1	0.0	0.1	0.5	0.6	0.5	0.1	0.1	0.1
RMSE	2.7	1.9	0.8	11.0	9.5	1.5	1.4	1.3	2.6
Corrected-Restrictive									
Mean	97.7	1.4	0.9	12.8	77.4	9.8	1.3	2.0	96.7
Bias	5.6	-2.6	-2.9	-24.5	39.5	-15.0	-5.0	-2.7	7.7
SD	0.1	0.1	0.1	0.7	1.0	0.8	0.1	0.1	0.1
RMSE	5.6	2.6	2.9	24.5	39.5	15.0	5.0	2.7	7.7
Corrected									
Mean	90.5	5.0	4.5	36.2	38.0	25.9	5.6	3.9	90.5
Bias	-1.7	1.0	0.7	-1.1	0.1	1.0	-0.6	-0.8	1.4
SD	1.1	0.7	0.7	5.8	5.4	4.9	1.0	0.8	1.4
RMSE	2.0	1.2	1.0	5.9	5.4	5.0	1.2	1.1	2.0

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D5: Simulation results of transition probabilities, Case 3 with $\Lambda = \{0, 1, 0, 1, 0.5, 1, 0, 0.5, 1\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.1	4.0	3.9	37.1	38.0	24.9	6.0	4.6	89.4
Reported									
Mean	94.8	2.0	3.2	28.4	46.9	24.7	4.6	3.5	91.8
Bias	2.7	-2.0	-0.8	-8.6	8.9	-0.2	-1.4	-1.1	2.5
SD	0.1	0.0	0.1	0.5	0.6	0.5	0.1	0.1	0.1
RMSE	2.7	2.0	0.8	8.7	8.9	0.6	1.4	1.1	2.5
Corrected-Restrictive									
Mean	97.6	1.3	1.0	13.6	81.6	4.8	1.4	1.8	96.9
Bias	5.6	-2.7	-2.9	-23.5	43.6	-20.1	-4.7	-2.8	7.5
SD	0.1	0.1	0.1	0.8	1.2	1.0	0.1	0.1	0.1
RMSE	5.6	2.7	2.9	23.5	43.6	20.1	4.7	2.8	7.5
Corrected									
Mean	93.1	2.7	4.2	36.6	42.5	20.9	7.5	5.1	87.4
Bias	1.1	-1.3	0.2	-0.5	4.5	-4.0	1.4	0.6	-2.0
SD	1.2	1.0	0.6	12.3	11.2	5.8	2.2	1.0	2.7
RMSE	1.6	1.7	0.7	12.3	12.1	7.1	2.6	1.2	3.4

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D6: Simulation results of transition probabilities, Case 3 with $\Lambda = \{0, 1, 0, 0.5, 0, 0.5, 1, 0.5, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.0	4.0	4.0	37.8	37.1	25.1	6.5	4.7	88.8
Reported									
Mean	94.5	2.1	3.4	27.8	46.2	26.0	5.2	3.5	91.3
Bias	2.5	-1.9	-0.6	-10.0	9.1	0.9	-1.3	-1.2	2.5
SD	0.1	0.0	0.1	0.5	0.6	0.5	0.1	0.1	0.1
RMSE	2.5	1.9	0.6	10.0	9.1	1.1	1.3	1.2	2.5
Corrected-Restrictive									
Mean	97.6	1.4	1.0	14.2	75.6	10.2	1.4	2.0	96.6
Bias	5.6	-2.6	-3.0	-23.6	38.5	-14.9	-5.1	-2.6	7.8
SD	0.1	0.1	0.1	0.8	1.0	0.8	0.1	0.1	0.1
RMSE	5.6	2.6	3.0	23.6	38.5	14.9	5.1	2.6	7.8
Corrected									
Mean	92.6	3.4	4.0	35.1	42.3	22.6	6.4	4.4	89.2
Bias	0.6	-0.6	0.0	-2.7	5.2	-2.5	-0.1	-0.2	0.3
SD	1.1	0.9	0.6	7.5	6.4	5.3	1.5	1.2	2.2
RMSE	1.3	1.1	0.6	8.0	8.2	5.9	1.5	1.2	2.3

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D7: Simulation results of transition probabilities, Case 3 with $\Lambda = \{1.5, -0.5, 0.5, 1.5, 0.5, 1.5, 0.5, 1.5, -0.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.1	4.0	4.0	36.2	38.1	25.7	6.1	4.8	89.2
Reported									
Mean	95.1	1.9	3.0	24.7	45.6	29.7	4.9	3.8	91.3
Bias	3.0	-2.1	-1.0	-11.5	7.6	4.0	-1.1	-1.0	2.1
SD	0.1	0.0	0.0	0.5	0.6	0.6	0.1	0.1	0.1
RMSE	3.0	2.1	1.0	11.6	7.6	4.0	1.1	1.0	2.1
Corrected-Restrictive									
Mean	97.9	1.2	0.9	11.5	84.6	3.9	1.4	1.4	97.3
Bias	5.9	-2.8	-3.1	-24.7	46.6	-21.8	-4.7	-3.4	8.1
SD	0.1	0.1	0.1	0.8	1.2	0.9	0.1	0.1	0.1
RMSE	5.9	2.8	3.1	24.7	46.6	21.8	4.7	3.4	8.1
Corrected									
Mean	89.1	5.3	5.6	29.6	48.5	21.8	6.9	2.6	90.5
Bias	-2.9	1.3	1.6	-6.6	10.5	-3.9	0.8	-2.1	1.3
SD	1.2	0.7	0.9	4.8	6.5	6.4	0.8	0.5	0.9
RMSE	3.2	1.5	1.8	8.1	12.3	7.5	1.2	2.2	1.6

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The “Reported” numbers are directly calculated from the mismeasured data. The “Corrected-Restrictive” ones are produced using the method with restrictive assumptions imposed. The “Corrected” ones are produced using the proposed method in this paper.

Table D8: Simulation results of transition probabilities, Case 3 with $\Lambda = \{1.5, -0.5, 0.5, 1.5, -0.5, 0.5, 1.5, 0.5, -0.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.1	3.9	4.0	37.2	37.1	25.7	6.3	4.7	89.0
Reported									
Mean	95.0	1.8	3.1	25.6	46.5	27.9	5.2	3.6	91.2
Bias	2.9	-2.1	-0.8	-11.6	9.4	2.2	-1.1	-1.1	2.2
SD	0.1	0.0	0.0	0.5	0.6	0.5	0.1	0.1	0.1
RMSE	2.9	2.1	0.8	11.6	9.4	2.2	1.1	1.1	2.2
Corrected-Restrictive									
Mean	97.8	1.4	0.8	15.6	77.6	6.8	1.2	1.8	97.0
Bias	5.7	-2.6	-3.2	-21.6	40.5	-18.9	-5.0	-2.9	8.0
SD	0.1	0.1	0.1	0.8	1.1	0.9	0.1	0.1	0.1
RMSE	5.7	2.6	3.2	21.6	40.5	18.9	5.0	2.9	8.0
Corrected									
Mean	88.9	5.5	5.5	38.2	37.1	24.7	5.7	3.3	91.0
Bias	-3.2	1.6	1.6	1.0	-0.1	-1.0	-0.6	-1.4	2.1
SD	1.2	0.9	0.7	6.4	7.5	5.0	1.2	0.8	1.5
RMSE	3.4	1.8	1.7	6.5	7.5	5.0	1.3	1.6	2.6

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The “Reported” numbers are directly calculated from the mismeasured data. The “Corrected-Restrictive” ones are produced using the method with restrictive assumptions imposed. The “Corrected” ones are produced using the proposed method in this paper.

Table D9: Simulation results of transition probabilities, Case 3 with $\Lambda = \{1.5, -0.5, 0.5, -0.5, 0.5, 1.5, -0.5, 0.5, 1.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	91.9	4.2	3.8	34.3	40.8	24.9	5.5	4.7	89.8
Reported									
Mean	95.4	1.9	2.7	24.2	51.1	24.7	4.1	3.5	92.3
Bias	3.5	-2.3	-1.2	-10.1	10.3	-0.2	-1.3	-1.2	2.5
SD	0.1	0.0	0.0	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	3.5	2.3	1.2	10.1	10.3	0.5	1.3	1.2	2.5
Corrected-Restrictive									
Mean	97.9	1.4	0.7	13.9	78.6	7.6	1.0	1.9	97.2
Bias	6.0	-2.9	-3.1	-20.5	37.7	-17.3	-4.5	-2.8	7.3
SD	0.1	0.1	0.1	0.6	0.9	0.7	0.1	0.1	0.1
RMSE	6.0	2.9	3.1	20.5	37.7	17.3	4.5	2.9	7.3
Corrected									
Mean	92.4	4.2	3.4	40.7	32.3	27.0	4.9	4.9	90.3
Bias	0.5	-0.1	-0.4	6.4	-8.5	2.2	-0.6	0.2	0.4
SD	1.2	0.8	0.6	4.7	4.3	3.4	0.9	1.1	1.7
RMSE	1.3	0.8	0.7	7.9	9.6	4.0	1.1	1.1	1.7

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D10: Simulation results of transition probabilities, Case 3 with $\Lambda = \{-0.5, 0.5, -0.5, 1.5, -0.5, 0.5, 1.5, -0.5, 1.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	92.0	4.1	3.8	38.5	37.2	24.3	6.4	4.6	89.0
Reported									
Mean	94.6	1.9	3.4	32.9	45.2	21.8	4.9	3.0	92.1
Bias	2.6	-2.2	-0.4	-5.5	8.0	-2.5	-1.5	-1.6	3.1
SD	0.1	0.0	0.1	0.5	0.6	0.5	0.1	0.1	0.1
RMSE	2.6	2.2	0.4	5.6	8.0	2.5	1.5	1.6	3.1
Corrected-Restrictive									
Mean	98.0	0.9	1.1	13.0	74.2	12.9	1.1	2.4	96.5
Bias	6.0	-3.2	-2.7	-25.5	37.0	-11.5	-5.3	-2.2	7.5
SD	0.1	0.1	0.1	0.8	1.1	0.9	0.1	0.1	0.1
RMSE	6.0	3.2	2.7	25.5	37.0	11.5	5.3	2.2	7.5
Corrected									
Mean	92.5	3.6	3.9	34.5	36.7	28.8	4.5	5.0	90.5
Bias	0.5	-0.5	0.1	-4.0	-0.5	4.4	-1.9	0.5	1.5
SD	1.2	0.9	0.7	6.1	5.3	5.6	2.0	1.7	3.1
RMSE	1.3	1.1	0.7	7.3	5.3	7.1	2.8	1.7	3.4

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

D.3 Checking the robustness of Assumption 2

In this subsection, we perform simulations to evaluate the robustness of our proposed estimators when Assumption 2 deviates as follows.

Case 4 Conditional on the reported status in period $t-1$, the true status in period $t-1$ may also affect the dynamics of underlying true labor force status across periods t and $t+q$. That is,

$$\begin{aligned} \Pr\left(S^*_{t+p}|\left\{S_\tau, S^*_\tau\right\}_{\tau\leq t}, \mathbf{X}\right) &= \Pr\left(S^*_{t+p}|S^*_t, S_{t-1}, S^*_{t-1}, \mathbf{X}\right) \\ &\neq \Pr\left(S^*_{t+p}|S^*_t, S_{t-1}, \mathbf{X}\right). \end{aligned}$$

To do this type of deviation, our strategy is similar to Case 3. Let the original

$$M_{S^*_{t+p}|S^*_t,S_{t-1}} = \begin{bmatrix} m_{1|1,k} & m_{1|2,k} & m_{1|3,k} \\ m_{2|1,k} & m_{2|2,k} & m_{2|3,k} \\ m_{3|1,k} & m_{3|2,k} & m_{3|3,k} \end{bmatrix},$$

and $\left[\underline{m}_{i|j,k}, \overline{m}_{i|j,k}\right]$ be the corresponding 95% confidence interval of the entry $m_{i|j,k}$. Define

$$\begin{aligned} \underline{M_{S^*_{t+p}|S^*_t,S_{t-1}=k}} &= \begin{bmatrix} 1-\underline{m}_{2|1,k}-\underline{m}_{3|1,k} & \underline{m}_{1|2,k} & \underline{m}_{1|3} \\ \underline{m}_{2|1,k} & 1-\underline{m}_{1|2,k}-\underline{m}_{3|2,k} & \underline{m}_{2|3,k} \\ \underline{m}_{3|1,k} & \underline{m}_{3|2,k} & 1-\underline{m}_{1|3,k}-\underline{m}_{2|3,k} \end{bmatrix}, \\ \overline{M_{S^*_{t+p}|S^*_t,S_{t-1}=k}} &= \begin{bmatrix} 1-\overline{m}_{2|1,k}-\overline{m}_{3|1,k} & \overline{m}_{1|2,k} & \overline{m}_{1|3,k} \\ \overline{m}_{2|1,k} & 1-\overline{m}_{1|2,k}-\overline{m}_{3|2,k} & \overline{m}_{2|3,k} \\ \overline{m}_{3|1,k} & \overline{m}_{3|2,k} & 1-\overline{m}_{1|3,k}-\overline{m}_{2|3,k} \end{bmatrix}, \end{aligned}$$

which are the two deviated transition probabilities matrix generated by allowing the off-diagonal entries to deviate to the upper and lower bounds of their 95% confidence intervals, respectively. We consider the following deviation:

$$M_{S^*_{t+p}|S^*_t,S_{t-1}=k,S^*_{t-1}} = \begin{bmatrix} M_{S^*_{t+p}|S^*_t,S_{t-1}=k,S^*_{t-1}=1} & M_{S^*_{t+p}|S^*_t,S_{t-1}=k,S^*_{t-1}=2} & M_{S^*_{t+p}|S^*_t,S_{t-1}=k,S^*_{t-1}=3} \end{bmatrix},$$

where

$$M_{S^*_{t+p}|S^*_t,S_{t-1}=k,S^*_{t-1}=l} = (1-\lambda_{k,l})\underline{M_{S^*_{t+p}|S^*_t,S_{t-1}=k}} + \lambda_{k,l}\overline{M_{S^*_{t+p}|S^*_t,S_{t-1}=k}}.$$

The degree of deviation is determined by $\Lambda = \{\lambda_{1,1}, \lambda_{1,2}, \lambda_{1,3}, \lambda_{2,1}, \lambda_{2,2}, \lambda_{2,3}, \lambda_{3,1}, \lambda_{3,2}, \lambda_{3,3}\}$. In our analysis, we still choose two sets of possible values for $\lambda_{k,l}$, i.e., $\{0, 0.5, 1\}$ and $\{-0.5, 0.5, 1.5\}$, with the latter allowing for slightly more deviations. Tables D11–D18 show that, even when Assumption 2 is violated to some extent, the results based on our proposed method are still acceptable. Additionally, our proposed estimators consistently outperform the restrictive ones.

Table D11: Simulation results of transition probabilities, Case 4 with $\Lambda = \{0.5, 1, 0.5, 0, 0.5, 0, 0.5, 1, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	91.7	4.2	4.1	35.4	38.5	26.1	6.7	5.4	87.9
Reported									
Mean	94.8	2.0	3.2	26.1	48.6	25.3	5.1	3.7	91.3
Bias	3.1	-2.2	-0.9	-9.3	10.1	-0.8	-1.6	-1.7	3.3
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	3.1	2.2	0.9	9.3	10.1	0.9	1.6	1.7	3.3
Corrected-Restrictive									
Mean	97.6	1.4	1.0	16.8	73.6	9.6	1.5	2.0	96.6
Bias	5.9	-2.8	-3.1	-18.6	35.1	-16.5	-5.2	-3.4	8.6
SD	0.1	0.1	0.1	0.6	0.9	0.8	0.1	0.1	0.1
RMSE	5.9	2.8	3.1	18.6	35.1	16.5	5.2	3.4	8.6
Corrected									
Mean	91.6	4.3	4.1	37.5	36.7	25.8	6.7	5.0	88.3
Bias	-0.1	0.1	0.0	2.1	-1.8	-0.3	0.0	-0.4	0.3
SD	1.4	1.1	0.8	6.1	5.2	5.4	1.1	1.2	2.0
RMSE	1.4	1.1	0.8	6.4	5.5	5.4	1.1	1.3	2.0

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D12: Simulation results of transition probabilities, Case 4 with $\Lambda = \{1, 0.5, 0, 1, 0, 0.5, 1, 0.5, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	93.4	3.1	3.6	35.8	37.1	27.1	6.6	5.6	87.9
Reported									
Mean	95.4	1.8	2.8	27.2	47.8	25.0	5.1	3.6	91.3
Bias	2.0	-1.3	-0.7	-8.6	10.7	-2.1	-1.4	-2.0	3.4
SD	0.1	0.0	0.0	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	2.0	1.3	0.7	8.6	10.7	2.1	1.4	2.0	3.4
Corrected-Restrictive									
Mean	98.2	1.1	0.7	18.5	72.7	8.8	1.5	1.9	96.6
Bias	4.8	-1.9	-2.9	-17.3	35.6	-18.3	-5.0	-3.7	8.7
SD	0.1	0.1	0.1	0.6	0.9	0.7	0.1	0.1	0.1
RMSE	4.8	1.9	2.9	17.3	35.6	18.3	5.0	3.7	8.7
Corrected									
Mean	93.9	2.5	3.6	30.5	40.6	28.9	5.3	5.2	89.5
Bias	0.5	-0.5	0.0	-5.3	3.5	1.8	-1.2	-0.4	1.6
SD	1.1	0.6	0.7	5.2	6.0	5.6	1.0	1.3	1.9
RMSE	1.2	0.8	0.7	7.4	6.9	5.9	1.6	1.4	2.5

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D13: Simulation results of transition probabilities, Case 4 with $\Lambda = \{0, 1, 0, 1, 0.5, 1, 0, 0.5, 1\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	90.9	4.9	4.2	40.5	33.4	26.2	6.0	4.1	89.9
Reported									
Mean	94.7	2.0	3.3	26.8	48.2	25.0	4.6	3.2	92.1
Bias	3.8	-2.9	-0.9	-13.7	14.8	-1.2	-1.4	-0.8	2.2
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	3.8	2.9	0.9	13.7	14.8	1.3	1.4	0.8	2.2
Corrected-Restrictive									
Mean	97.6	1.3	1.1	17.4	71.6	11.0	1.0	1.6	97.4
Bias	6.7	-3.6	-3.1	-23.1	38.2	-15.2	-5.0	-2.5	7.4
SD	0.1	0.1	0.1	0.6	0.8	0.7	0.1	0.1	0.1
RMSE	6.7	3.6	3.1	23.1	38.2	15.2	5.0	2.5	7.4
Corrected									
Mean	92.4	3.7	3.9	39.8	33.0	27.2	6.4	4.7	88.9
Bias	1.5	-1.2	-0.3	-0.7	-0.4	1.1	0.5	0.6	-1.1
SD	1.1	0.8	0.7	8.2	6.5	6.0	1.7	1.0	2.2
RMSE	1.9	1.4	0.8	8.2	6.5	6.1	1.8	1.1	2.4

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D14: Simulation results of transition probabilities, Case 4 with $\Lambda = \{0, 1, 0, 0.5, 0, 0.5, 1, 0.5, 0\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	90.1	5.3	4.6	44.9	24.1	31.0	7.3	6.0	86.6
Reported									
Mean	94.6	2.0	3.4	27.6	46.9	25.5	5.3	3.7	91.0
Bias	4.5	-3.3	-1.2	-17.3	22.7	-5.4	-2.0	-2.4	4.4
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	4.5	3.3	1.2	17.3	22.7	5.5	2.0	2.4	4.4
Corrected-Restrictive									
Mean	97.6	1.3	1.1	17.2	73.6	9.2	1.5	1.9	96.5
Bias	7.5	-4.0	-3.5	-27.7	49.5	-21.8	-5.8	-4.1	9.9
SD	0.1	0.1	0.1	0.6	0.9	0.7	0.1	0.1	0.1
RMSE	7.5	4.0	3.5	27.7	49.5	21.8	5.8	4.1	9.9
Corrected									
Mean	91.1	4.5	4.4	42.1	26.1	31.8	6.7	6.0	87.3
Bias	1.0	-0.8	-0.2	-2.8	1.9	0.8	-0.7	-0.0	0.7
SD	1.3	0.9	0.9	7.7	5.9	5.9	1.7	1.4	2.5
RMSE	1.7	1.2	0.9	8.2	6.2	5.9	1.9	1.4	2.6

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D15: Simulation results of transition probabilities, Case 4 with $\Lambda = \{1.5, -0.5, 0.5, 1.5, 0.5, 1.5, 0.5, 1.5, -0.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	95.1	1.9	3.0	37.4	33.0	29.6	6.1	5.2	88.8
Reported									
Mean	95.7	1.5	2.8	27.0	46.8	26.2	5.1	3.6	91.3
Bias	0.7	-0.5	-0.2	-10.4	13.7	-3.3	-1.0	-1.6	2.5
SD	0.1	0.0	0.0	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	0.7	0.5	0.2	10.4	13.8	3.4	1.0	1.6	2.5
Corrected-Restrictive									
Mean	98.6	0.7	0.7	18.3	68.7	12.9	1.6	2.1	96.2
Bias	3.5	-1.3	-2.2	-19.1	35.7	-16.6	-4.4	-3.0	7.5
SD	0.1	0.1	0.1	0.6	0.8	0.7	0.1	0.1	0.1
RMSE	3.5	1.3	2.2	19.1	35.7	16.7	4.4	3.0	7.5
Corrected									
Mean	94.7	2.1	3.2	25.9	44.1	30.0	5.1	4.9	90.0
Bias	-0.3	0.1	0.2	-11.5	11.1	0.4	-0.9	-0.3	1.3
SD	1.0	0.4	0.7	3.6	5.6	5.5	0.8	0.8	1.2
RMSE	1.0	0.5	0.8	12.1	12.4	5.5	1.2	0.9	1.7

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D16: Simulation results of transition probabilities, Case 4 with $\Lambda = \{1.5, -0.5, 0.5, 1.5, -0.5, 0.5, 1.5, 0.5, -0.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	94.3	2.4	3.3	41.0	26.3	32.7	6.7	6.1	87.2
Reported									
Mean	95.7	1.5	2.8	28.2	46.0	25.8	5.4	3.7	90.9
Bias	1.3	-0.9	-0.5	-12.8	19.8	-6.9	-1.3	-2.4	3.7
SD	0.1	0.0	0.0	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	1.3	0.9	0.5	12.9	19.8	6.9	1.3	2.4	3.7
Corrected-Restrictive									
Mean	98.5	0.7	0.7	19.0	71.6	9.5	1.8	2.1	96.2
Bias	4.2	-1.7	-2.5	-22.0	45.3	-23.3	-4.9	-4.0	9.0
SD	0.1	0.1	0.1	0.6	0.9	0.7	0.1	0.1	0.1
RMSE	4.2	1.7	2.5	22.0	45.3	23.3	4.9	4.0	9.0
Corrected									
Mean	96.0	1.1	2.8	23.2	41.4	35.4	5.1	6.2	88.7
Bias	1.7	-1.3	-0.4	-17.8	15.2	2.6	-1.6	0.2	1.5
SD	0.9	0.3	0.7	3.4	6.8	6.2	0.8	1.5	1.8
RMSE	1.9	1.3	0.8	18.1	16.6	6.7	1.8	1.5	2.3

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D17: Simulation results of transition probabilities, Case 4 with $\Lambda = \{1.5, -0.5, 0.5, -0.5, 0.5, 1.5, -0.5, 0.5, 1.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	94.7	2.3	3.0	36.9	36.5	26.6	4.3	2.7	93.0
Reported									
Mean	95.7	1.5	2.8	24.8	48.7	26.5	3.9	2.9	93.2
Bias	1.0	-0.8	-0.2	-12.1	12.2	-0.1	-0.4	0.2	0.2
SD	0.1	0.0	0.0	0.4	0.5	0.5	0.1	0.1	0.1
RMSE	1.0	0.8	0.2	12.1	12.2	0.5	0.4	0.2	0.2
Corrected-Restrictive									
Mean	98.7	0.6	0.7	13.8	71.1	15.1	0.6	1.4	98.1
Bias	4.0	-1.7	-2.3	-23.1	34.6	-11.5	-3.8	-1.3	5.1
SD	0.1	0.1	0.1	0.6	0.8	0.7	0.1	0.1	0.1
RMSE	4.0	1.7	2.3	23.1	34.6	11.5	3.8	1.3	5.1
Corrected									
Mean	96.3	1.3	2.4	28.8	50.2	21.0	4.6	3.1	92.3
Bias	1.6	-1.0	-0.6	-8.1	13.8	-5.7	0.2	0.4	-0.7
SD	0.7	0.3	0.5	3.4	4.6	4.2	0.9	1.0	1.5
RMSE	1.8	1.0	0.8	8.7	14.5	7.0	1.0	1.1	1.7

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

Table D18: Simulation results of transition probabilities, Case 4 with $\Lambda = \{-0.5, 0.5, -0.5, 1.5, -0.5, 0.5, 1.5, -0.5, 1.5\}$

	$\Pr(\mathscr{S}_{t+1} = i \mid \mathscr{S}_t = j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
True	89.8	5.8	4.4	48.0	21.0	31.0	6.3	4.4	89.3
Reported									
Mean	94.4	2.2	3.4	29.0	45.8	25.2	5.1	2.9	92.0
Bias	4.6	-3.6	-1.0	-19.0	24.8	-5.8	-1.2	-1.5	2.7
SD	0.1	0.0	0.1	0.5	0.5	0.5	0.1	0.1	0.1
RMSE	4.6	3.6	1.0	19.0	24.8	5.8	1.2	1.5	2.7
Corrected-Restrictive									
Mean	97.3	1.6	1.2	19.5	70.3	10.2	1.5	1.0	97.5
Bias	7.5	-4.3	-3.2	-28.5	49.3	-20.8	-4.8	-3.3	8.2
SD	0.1	0.1	0.1	0.6	0.9	0.7	0.1	0.1	0.1
RMSE	7.5	4.3	3.2	28.5	49.3	20.8	4.8	3.3	8.2
Corrected									
Mean	90.5	5.5	4.0	44.6	31.5	23.9	5.8	3.9	90.3
Bias	0.8	-0.3	-0.4	-3.4	10.5	-7.1	-0.5	-0.5	0.9
SD	1.3	1.2	0.6	8.1	6.4	4.4	1.6	0.8	2.1
RMSE	1.5	1.2	0.7	8.7	12.3	8.4	1.7	0.9	2.3

Note: Number of repetitions is 500, and the sample size for each repetition is 200,000. The "Reported" numbers are directly calculated from the mismeasured data. The "Corrected-Restrictive" ones are produced using the method with restrictive assumptions imposed. The "Corrected" ones are produced using the proposed method in this paper.

E Testing Assumption 3 Using the CPS Data

Assumption 3 requires that, for each combination of s_t and s_{t-1}, the observed matrix $M_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}}$ has a full rank, which implies its determinant is not equal to zero. We then use the real CPS data to calculate the determinants and bootstrap the standard errors. The results in Table E1 show that, for each demographic group, we can always reject the null hypothesis that the determinant is zero at the 1% significance level, suggesting that Assumption 3 holds with the CPS data.

Table E1: Testing Assumption 3, determinants of $M_{S_{t+1},s_t,s_{t-1},S_{t-2}|\mathbf{x}}$

	(s_t, s_{t-1})								
	(E,E)	(E,U)	(E,N)	(U,E)	(U,U)	(U,N)	(N,E)	(N,U)	(N,N)
(1) Aged 16-24	9.7e-07	2.7e-10	5.0e-09	5.6e-10	2.0e-08	5.5e-09	3.5e-09	4.9e-09	2.0e-06
	(6.2e-08)	(8.7e-11)	(6.8e-10)	(1.1e-10)	(1.7e-09)	(6.4e-10)	(5.3e-10)	(4.7e-10)	(8.9e-08)
	[15.62]	[3.07]	[7.38]	[5.32]	[11.36]	[8.56]	[6.61]	[10.41]	[21.97]
(2) Aged 25-54	1.9e-07	2.4e-11	3.6e-10	3.7e-11	4.5e-09	2.2e-10	3.6e-10	2.1e-10	1.1e-07
	(1.0e-08)	(5.1e-12)	(3.6e-11)	(6.5e-12)	(2.7e-10)	(2.1e-11)	(4.0e-11)	(2.0e-11)	(4.4e-09)
	[18.56]	[4.81]	[10.21]	[5.67]	[16.84]	[10.24]	[9.13]	[10.42]	[25.03]
(3) Aged 55 plus	3.9e-08	2.8e-12	5.7e-11	3.6e-12	4.9e-10	4.8e-11	1.2e-10	3.7e-11	3.3e-07
	(3.9e-09)	(9.6e-13)	(2.3e-11)	(1.1e-12)	(4.7e-11)	(6.9e-12)	(2.9e-11)	(6.2e-12)	(2.0e-08)
	[9.97]	[2.91]	[2.46]	[3.38]	[10.44]	[6.92]	[3.95]	[5.87]	[16.51]
(4) Male	3.8e-07	6.5e-11	5.8e-10	9.4e-11	6.4e-09	4.3e-10	5.4e-10	4.6e-10	3.2e-07
	(1.8e-08)	(1.3e-11)	(6.0e-11)	(1.4e-11)	(3.5e-10)	(4.3e-11)	(5.7e-11)	(3.8e-11)	(1.2e-08)
	[20.81]	[5.00]	[9.65]	[6.62]	[18.12]	[9.95]	[9.43]	[12.18]	[27.24]
(5) Female	1.6e-07	2.0e-11	6.2e-10	2.3e-11	2.6e-09	3.7e-10	5.5e-10	2.6e-10	5.5e-07
	(9.6e-09)	(4.9e-12)	(6.9e-11)	(5.0e-12)	(1.7e-10)	(3.3e-11)	(6.8e-11)	(2.4e-11)	(2.0e-08)
	[16.72]	[4.13]	[8.91]	[4.54]	[15.77]	[11.31]	[8.03]	[10.52]	[28.16]
(6) White	2.5e-07	2.1e-11	4.5e-10	3.6e-11	3.2e-09	2.2e-10	3.5e-10	2.0e-10	3.5e-07
	(1.1e-08)	(4.4e-12)	(4.2e-11)	(5.7e-12)	(1.6e-10)	(1.8e-11)	(3.7e-11)	(1.6e-11)	(1.1e-08)
	[23.79]	[4.71]	[10.68]	[6.45]	[20.40]	[12.43]	[9.63]	[13.01]	[32.33]
(7) Nonwhite	3.1e-07	1.8e-10	1.5e-09	1.7e-10	1.2e-08	1.9e-09	2.1e-09	1.7e-09	8.5e-07
	(2.4e-08)	(3.5e-11)	(2.0e-10)	(3.1e-11)	(1.0e-09)	(2.3e-10)	(2.5e-10)	(1.8e-10)	(4.0e-08)
	[12.93]	[5.07]	[7.83]	[5.65]	[11.46]	[8.39]	[8.29]	[9.11]	[20.96]

Note: In parentheses are bootstrapped standard errors based on 500 repetitions, and corresponding t-values are in square brackets.

F Correcting Labor Flows with the Framework in Feng and Hu (2013)

Although Feng and Hu (2013) focus on correcting for misclassification errors in labor stock statistics (i.e., unemployment rate and labor force participation rate), their framework may also be applied to correcting labor flow statistics using a two-step procedure.

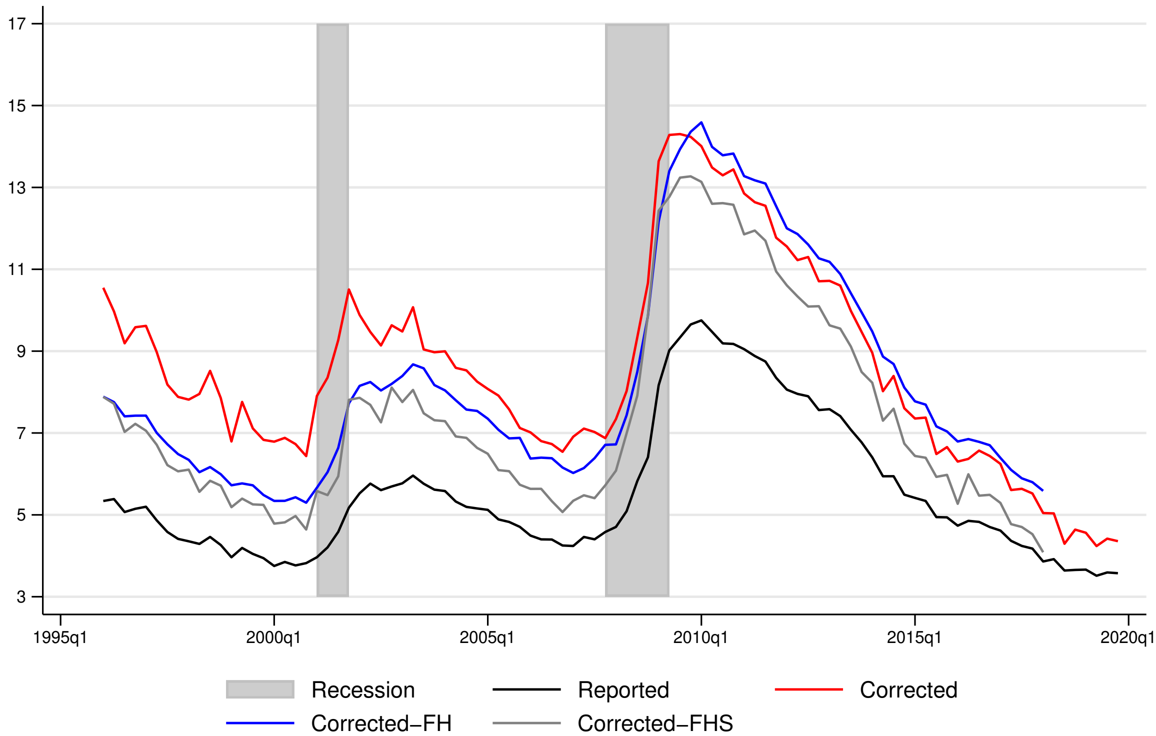
Consider the following equation with three-period matched data:

$$\begin{aligned}
&\Pr\left(S_{t+1}, S_t, S_{t-9}|\mathbf{X}\right) \\
= &\sum_{S_t^*}\left(\sum_{S_{t+1}^*}\Pr\left(S_{t+1}|S_{t+1}^*, \mathbf{X}\right)\Pr\left(S_{t+1}^*|S_t^*, \mathbf{X}\right)\right)\Pr\left(S_t|S_t^*, \mathbf{X}\right)\Pr\left(S_t^*, S_{t-9}|\mathbf{X}\right) \qquad (25) \\
= &\sum_{S_t^*}\Pr\left(S_{t+1}|S_t^*, \mathbf{X}\right)\Pr\left(S_t|S_t^*, \mathbf{X}\right)\Pr\left(S_t^*, S_{t-9}|\mathbf{X}\right). \qquad (26)
\end{aligned}$$

First, the misclassification probabilities in period t, i.e., $\Pr\left(S_t|S_t^*, \mathbf{X}\right)$, can be identified and estimated from Equation (26) using the proposed eigenvalue-eigenvector decomposition method in Feng and Hu (2013). Second, we may plugin the estimated $\Pr\left(S_t|S_t^*, \mathbf{X}\right)$ back to Equation (25) and use MLE to estimate the transition probabilities, i.e., $\Pr\left(S_{t+1}^*|S_t^*, \mathbf{X}\right)$, as well as the misclassification probabilities in period $t+1$, i.e., $\Pr\left(S_{t+1}|S_{t+1}^*, \mathbf{X}\right)$. It is worth noting that the second step relies on a local identification argument that the number of unknowns dose not exceed that of restrictions, and needs a set of proper initial values. For simplicity, we do not include observed heterogeneity in this exercise.

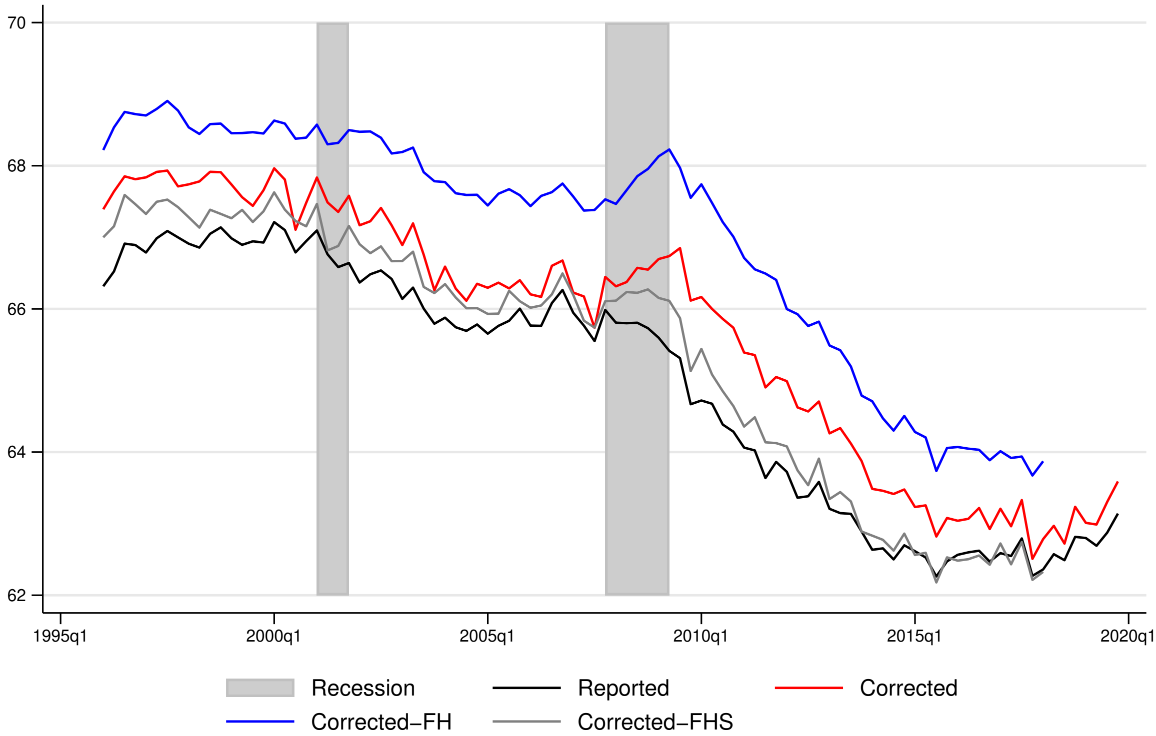
G Additional Results

Figure G1: Reported and corrected unemployment rate



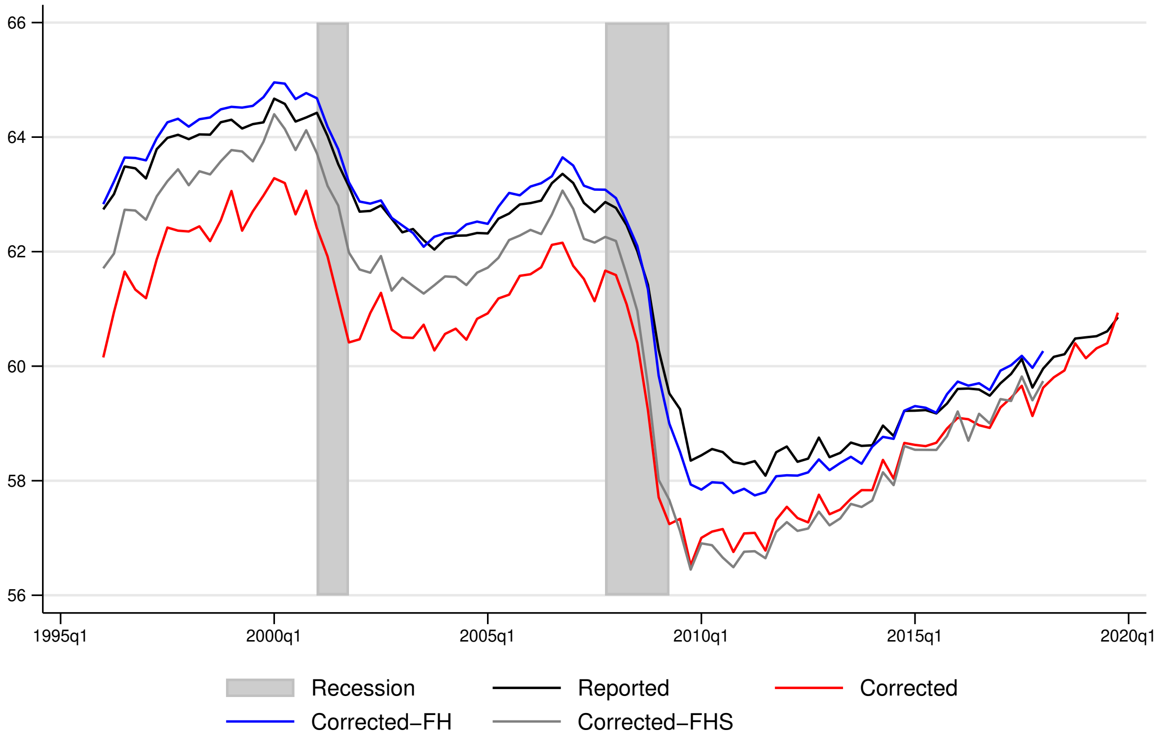
Note: The "Reported" line is based on the uncorrected numbers and the "Corrected" one is calculated using the method in this paper. The "Corrected-FH" and the "Corrected-FHS" ones are from Feng and Hu (2013) and Feng, Hu, and Sun (2022), respectively. All series are quarterly average of monthly data, seasonally adjusted using a ratio to moving average.

Figure G2: Reported and corrected labor force participation rate



Note: The "Reported" line is based on the uncorrected numbers and the "Corrected" one is calculated using the method in this paper. The "Corrected-FH" and the "Corrected-FHS" ones are from Feng and Hu (2013) and Feng, Hu, and Sun (2022), respectively. All series are quarterly average of monthly data, seasonally adjusted using a ratio to moving average.

Figure G3: Reported and corrected employment-to-population ratio



Note: The "Reported" line is based on the uncorrected numbers and the "Corrected" one is calculated using the method in this paper. The "Corrected-FH" and the "Corrected-FHS" ones are from Feng and Hu (2013) and Feng, Hu, and Sun (2022), respectively. All series are quarterly average of monthly data, seasonally adjusted using a ratio to moving average.

Table G1: Parameters of multinomial logit model for misclassification probabilities, $\Pr\left(S_\tau | S^*_\tau, S_{\tau-1}, \mathbf{X}\right)$

	$S^*_\tau = E$		$S^*_\tau = U$		$S^*_\tau = N$	
	$S_\tau = E$	$S_\tau = U$	$S_\tau = E$	$S_\tau = U$	$S_\tau = E$	$S_\tau = U$
Panel A: Aged 16-24						
$S_{\tau-1} = U$	-2.04***	1.73***	-2.42***	0.73***	-1.94***	1.45***
	(0.07)	(0.06)	(0.16)	(0.06)	(0.05)	(0.06)
$S_{\tau-1} = N$	-4.01***	-1.41***	-3.67***	-0.99***	-3.98***	-1.52***
	(0.02)	(0.08)	(0.13)	(0.06)	(0.02)	(0.07)
Female	-0.00	-0.32***	-0.02	-0.25***	-0.03	-0.15***
	(0.02)	(0.04)	(0.07)	(0.03)	(0.02)	(0.03)
Nonwhite	-0.12***	0.22***	-0.41***	0.14***	-0.36***	0.26***
	(0.02)	(0.06)	(0.07)	(0.04)	(0.02)	(0.05)
Sub-period 2	-0.03	-0.35***	-0.41***	-0.02	-0.12**	-0.37***
	(0.05)	(0.12)	(0.12)	(0.08)	(0.06)	(0.10)
Sub-period 3	0.07***	-0.08	-0.44***	0.08	-0.12***	-0.11**
	(0.03)	(0.05)	(0.07)	(0.06)	(0.03)	(0.05)
Sub-period 4	0.23***	-0.41	-0.36***	0.09	-0.23***	-0.31***
	(0.06)	(0.37)	(0.11)	(0.08)	(0.05)	(0.12)
Sub-period 5	0.11***	-0.00	-0.59***	0.17**	-0.39***	-0.35***
	(0.03)	(0.09)	(0.14)	(0.08)	(0.03)	(0.09)
Constant for $\tau = t$	3.17***	-0.87***	2.25***	0.33***	1.16***	-1.70***
	(0.03)	(0.06)	(0.09)	(0.08)	(0.03)	(0.08)
Constant for $\tau = t + 1$	3.60***	-0.83***	2.29***	0.52***	0.74***	-2.38***
	(0.03)	(0.07)	(0.10)	(0.09)	(0.03)	(0.08)
Panel B: Aged 25-54						
$S_{\tau-1} = U$	-3.32***	1.79***	-2.78***	0.89***	-2.49***	2.00***
	(0.04)	(0.04)	(0.07)	(0.05)	(0.06)	(0.05)
$S_{\tau-1} = N$	-4.98***	-1.61***	-4.47***	-1.41***	-4.84***	-2.43***
	(0.02)	(0.05)	(0.07)	(0.04)	(0.03)	(0.06)
Female	-0.57***	-0.72***	-0.32***	-0.35***	0.09***	-0.18***
	(0.02)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
Nonwhite	-0.22***	-0.18***	-0.39***	-0.19***	-0.10***	0.14***
	(0.02)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Sub-period 2	-0.02	-0.21***	0.19**	0.14*	0.15***	0.03
	(0.06)	(0.08)	(0.10)	(0.08)	(0.06)	(0.09)
Sub-period 3	0.00	0.07*	-0.01	0.08	-0.03	0.08
	(0.03)	(0.04)	(0.06)	(0.05)	(0.04)	(0.05)
Sub-period 4	-0.06	0.15***	-0.11	0.12**	-0.20***	0.30***
	(0.04)	(0.05)	(0.07)	(0.05)	(0.05)	(0.06)
Sub-period 5	-0.15***	-0.06*	-0.24***	0.14***	-0.15***	0.20***
	(0.03)	(0.04)	(0.06)	(0.04)	(0.03)	(0.05)
Constant for $\tau = t$	5.42***	0.21***	3.02***	1.13***	0.81***	-1.98***
	(0.03)	(0.04)	(0.06)	(0.05)	(0.04)	(0.07)
Constant for $\tau = t + 1$	5.81***	0.19***	2.98***	1.43***	0.30***	-2.84***
	(0.03)	(0.04)	(0.06)	(0.05)	(0.04)	(0.08)

Note: Dummies for $S_{\tau-1} = E$ and sub-period 1 are omitted as reference groups. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G1 (Continued): Parameters of multinomial logit model for misclassification probabilities, $\Pr\left(S_{\tau}|S^*_{\tau}, S_{\tau-1}, \mathbf{X}\right)$

	$S^*_{\tau}=E$		$S^*_{\tau}=U$		$S^*_{\tau}=N$	
	$S_{\tau}=E$	$S_{\tau}=U$	$S_{\tau}=E$	$S_{\tau}=U$	$S_{\tau}=E$	$S_{\tau}=U$
Panel C: Aged 55 plus						
$S_{\tau-1}=U$	-3.02***	2.21***	-3.14***	1.05***	-2.76***	2.69***
	(0.06)	(0.07)	(0.15)	(0.12)	(0.10)	(0.09)
$S_{\tau-1}=N$	-4.94***	-2.06***	-4.78***	-1.53***	-5.65***	-3.25***
	(0.03)	(0.06)	(0.14)	(0.10)	(0.04)	(0.10)
Female	-0.10***	-0.22***	0.04	-0.24***	-0.22***	-0.21***
	(0.03)	(0.05)	(0.07)	(0.06)	(0.03)	(0.06)
Nonwhite	-0.05	-0.03	-0.46***	-0.17***	-0.08***	-0.04
	(0.04)	(0.07)	(0.08)	(0.07)	(0.04)	(0.08)
Sub-period 2	0.29***	0.60***	-0.38*	-0.30*	0.08	-0.02
	(0.09)	(0.13)	(0.21)	(0.18)	(0.08)	(0.23)
Sub-period 3	0.27***	0.44***	0.03	0.14	0.16***	0.37***
	(0.04)	(0.09)	(0.13)	(0.11)	(0.04)	(0.10)
Sub-period 4	0.37***	0.74***	0.02	0.53***	0.11**	0.66***
	(0.06)	(0.10)	(0.15)	(0.12)	(0.06)	(0.10)
Sub-period 5	0.33***	0.68***	-0.17	0.32***	0.18***	0.56***
	(0.03)	(0.07)	(0.12)	(0.10)	(0.04)	(0.09)
Constant for $\tau=t$	4.10***	-1.49***	2.53***	0.54***	0.49***	-3.22***
	(0.04)	(0.08)	(0.13)	(0.12)	(0.04)	(0.12)
Constant for $\tau=t+1$	4.60***	-1.40***	2.73***	1.20***	0.05***	-3.76***
	(0.04)	(0.09)	(0.15)	(0.13)	(0.04)	(0.12)

Note: Dummies for $S_{\tau-1}=E$ and sub-period 1 are omitted as reference groups. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G2: Misclassification probabilities by subgroups, $\Pr(S_t = i | S_t^* = j, S_{t-1} = k)$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Aged 16-24, male, and white									
$i=E$	94.8	72.5	69.4	50.6	11.5	18.6	29.6	9.5	4.3
	(0.11)	(1.96)	(0.42)	(1.93)	(0.68)	(0.74)	(0.54)	(0.49)	(0.10)
$i=U$	1.5	16.6	4.0	34.1	67.8	31.5	6.2	33.0	2.9
	(0.07)	(1.30)	(0.27)	(1.61)	(0.72)	(1.26)	(0.47)	(1.07)	(0.11)
$i=N$	3.7	10.9	26.7	15.3	20.8	49.9	64.1	57.4	92.7
	(0.08)	(0.82)	(0.49)	(0.81)	(0.56)	(1.18)	(0.42)	(1.18)	(0.16)
(2) Aged 16-24, male, and nonwhite									
$i=E$	93.9	60.8	60.1	43.9	7.1	12.5	26.9	6.2	3.1
	(0.19)	(3.78)	(0.63)	(2.37)	(0.48)	(0.50)	(0.75)	(0.52)	(0.08)
$i=U$	2.0	25.0	6.4	41.3	73.5	39.5	7.9	37.5	3.8
	(0.11)	(2.59)	(0.36)	(2.15)	(0.81)	(1.00)	(0.76)	(1.28)	(0.16)
$i=N$	4.1	14.1	33.5	14.8	19.5	48.0	65.2	56.3	93.1
	(0.13)	(1.39)	(0.62)	(0.77)	(0.66)	(1.07)	(0.56)	(1.23)	(0.19)
(3) Aged 16-24, female, and white									
$i=E$	95.2	74.9	69.1	55.8	13.3	19.0	30.2	10.2	4.3
	(0.11)	(2.64)	(0.46)	(2.02)	(0.78)	(0.79)	(0.52)	(0.71)	(0.09)
$i=U$	1.1	13.6	3.5	27.4	62.3	28.6	4.6	27.8	2.5
	(0.06)	(1.59)	(0.21)	(1.55)	(0.87)	(1.05)	(0.38)	(1.14)	(0.08)
$i=N$	3.7	11.5	27.4	16.9	24.4	52.3	65.3	62.0	93.2
	(0.09)	(1.17)	(0.50)	(0.90)	(0.66)	(1.01)	(0.40)	(1.12)	(0.12)
(4) Aged 16-24, female, and nonwhite									
$i=E$	94.4	64.0	59.8	49.3	8.4	12.9	27.5	6.6	3.0
	(0.18)	(4.55)	(0.66)	(2.61)	(0.81)	(0.54)	(0.72)	(0.82)	(0.08)
$i=U$	1.5	20.9	5.7	33.9	68.3	36.1	5.8	32.0	3.3
	(0.09)	(2.85)	(0.30)	(2.27)	(1.09)	(1.02)	(0.61)	(1.37)	(0.15)
$i=N$	4.1	15.1	34.5	16.8	23.3	50.9	66.7	61.4	93.7
	(0.13)	(1.85)	(0.67)	(0.87)	(0.77)	(1.06)	(0.54)	(1.20)	(0.19)
(5) Aged 25-54, male, and white									
$i=E$	99.0	81.1	64.6	47.9	10.6	7.2	53.7	10.3	1.6
	(0.02)	(0.67)	(0.74)	(0.91)	(0.43)	(0.43)	(0.59)	(0.57)	(0.05)
$i=U$	0.6	14.6	4.8	45.8	79.9	50.3	9.1	40.7	1.4
	(0.01)	(0.53)	(0.26)	(0.93)	(0.45)	(0.89)	(0.37)	(0.71)	(0.05)
$i=N$	0.5	4.3	30.6	6.3	9.5	42.5	37.2	49.0	97.0
	(0.01)	(0.21)	(0.72)	(0.22)	(0.28)	(0.84)	(0.58)	(0.88)	(0.08)
(6) Aged 25-54, male, and nonwhite									
$i=E$	98.8	76.7	61.4	46.3	8.7	6.1	48.8	7.8	1.4
	(0.03)	(1.01)	(0.94)	(1.15)	(0.45)	(0.35)	(0.78)	(0.51)	(0.06)
$i=U$	0.6	17.2	5.9	46.1	79.8	54.3	8.6	37.5	1.6
	(0.02)	(0.81)	(0.34)	(1.16)	(0.60)	(0.90)	(0.41)	(0.79)	(0.07)
$i=N$	0.6	6.1	32.6	7.6	11.5	39.7	42.6	54.7	97.0
	(0.02)	(0.32)	(0.86)	(0.28)	(0.39)	(0.83)	(0.74)	(0.88)	(0.10)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G2 (Continued): Misclassification probabilities by subgroups, $\Pr(S_t = i | S_t^* = j, S_{t-1} = k)$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(7) Aged 25-54, female, and white									
$i=E$	98.7	80.1	67.1	48.7	10.5	8.7	42.4	9.0	1.8
	(0.03)	(1.16)	(0.58)	(0.92)	(0.46)	(0.50)	(0.59)	(0.57)	(0.05)
$i=U$	0.5	14.0	3.8	40.0	76.5	45.2	6.1	33.5	1.1
	(0.02)	(0.86)	(0.17)	(0.94)	(0.63)	(0.69)	(0.23)	(0.84)	(0.04)
$i=N$	0.8	5.9	29.1	11.3	12.9	46.1	51.5	57.5	97.1
	(0.02)	(0.38)	(0.56)	(0.37)	(0.45)	(0.70)	(0.62)	(0.97)	(0.06)
(8) Aged 25-54, female, and non-white									
$i=E$	98.5	75.4	64.1	46.7	8.6	7.4	37.3	6.5	1.6
	(0.04)	(1.46)	(0.83)	(1.17)	(0.42)	(0.42)	(0.61)	(0.47)	(0.06)
$i=U$	0.5	16.3	4.7	39.8	75.9	49.1	5.6	30.5	1.3
	(0.02)	(1.03)	(0.26)	(1.22)	(0.63)	(0.89)	(0.27)	(0.67)	(0.06)
$i=N$	1.0	8.2	31.1	13.5	15.5	43.5	57.1	63.0	97.1
	(0.03)	(0.53)	(0.77)	(0.45)	(0.51)	(0.84)	(0.62)	(0.80)	(0.09)
(9) Aged 55 plus, male, and white									
$i=E$	98.3	78.8	63.8	46.0	6.2	5.9	34.4	6.1	0.6
	(0.05)	(1.05)	(0.78)	(0.93)	(0.71)	(0.54)	(0.78)	(0.68)	(0.02)
$i=U$	0.5	14.4	2.1	41.9	81.1	45.4	3.0	29.9	0.2
	(0.02)	(0.82)	(0.17)	(1.05)	(1.08)	(1.33)	(0.14)	(1.63)	(0.02)
$i=N$	1.3	6.8	34.1	12.1	12.7	48.8	62.6	64.0	99.1
	(0.04)	(0.60)	(0.77)	(0.65)	(0.86)	(1.27)	(0.84)	(1.71)	(0.03)
(10) Aged 55 plus, male, and non-white									
$i=E$	98.2	72.1	62.0	45.1	4.5	5.5	33.5	4.1	0.6
	(0.08)	(1.65)	(1.05)	(1.53)	(0.54)	(0.52)	(1.04)	(0.46)	(0.03)
$i=U$	0.5	18.0	2.1	42.6	80.8	44.9	3.0	27.3	0.2
	(0.04)	(1.22)	(0.22)	(1.74)	(1.32)	(1.64)	(0.22)	(1.57)	(0.02)
$i=N$	1.3	9.9	35.8	12.3	14.7	49.6	63.5	68.6	99.2
	(0.06)	(0.92)	(1.03)	(0.77)	(1.20)	(1.58)	(1.08)	(1.71)	(0.04)
(11) Aged 55 plus, female, and white									
$i=E$	98.2	81.9	58.9	47.4	7.8	5.2	32.4	6.8	0.5
	(0.05)	(1.12)	(0.93)	(1.03)	(0.78)	(0.47)	(0.63)	(0.79)	(0.01)
$i=U$	0.4	11.3	1.9	38.8	77.0	40.9	2.5	25.1	0.2
	(0.02)	(0.84)	(0.15)	(1.06)	(1.35)	(1.14)	(0.13)	(1.49)	(0.01)
$i=N$	1.4	6.8	39.2	13.7	15.3	53.9	65.1	68.1	99.3
	(0.04)	(0.65)	(0.93)	(0.72)	(1.19)	(1.10)	(0.66)	(1.67)	(0.02)
(12) Aged 55 plus, female, and non-white									
$i=E$	98.1	75.8	57.0	46.5	5.6	4.9	31.6	4.6	0.5
	(0.08)	(1.67)	(1.20)	(1.45)	(0.62)	(0.46)	(0.98)	(0.54)	(0.02)
$i=U$	0.4	14.2	2.0	39.4	76.6	40.4	2.5	22.8	0.2
	(0.03)	(1.20)	(0.22)	(1.54)	(1.69)	(1.87)	(0.18)	(1.40)	(0.02)
$i=N$	1.4	10.0	41.0	14.1	17.8	54.7	65.9	72.7	99.3
	(0.07)	(0.95)	(1.20)	(0.85)	(1.55)	(1.80)	(1.00)	(1.55)	(0.03)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G3: Misclassification probabilities by subgroups, $\Pr\left(S_{t+1}=i|S^*_{t+1}=j,S_t=k\right)$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Aged 16-24, male, and white									
$i=E$	96.5	70.8	61.3	60.5	10.7	15.5	39.3	9.3	3.0
	(0.10)	(1.09)	(0.50)	(1.13)	(1.44)	(0.67)	(0.45)	(0.94)	(0.08)
$i=U$	1.0	18.9	2.7	27.6	71.1	20.5	5.6	37.1	1.5
	(0.07)	(0.75)	(0.17)	(1.04)	(1.59)	(0.83)	(0.30)	(0.90)	(0.07)
$i=N$	2.5	10.3	35.9	11.9	18.2	64.0	55.2	53.6	95.5
	(0.05)	(0.62)	(0.51)	(0.70)	(0.59)	(0.92)	(0.46)	(0.90)	(0.11)
(2) Aged 16-24, male, and non-white									
$i=E$	95.9	59.0	51.8	53.8	6.6	10.6	36.1	6.0	2.1
	(0.11)	(1.83)	(0.67)	(1.48)	(0.71)	(0.49)	(0.61)	(0.45)	(0.07)
$i=U$	1.4	27.9	4.3	34.4	76.4	26.2	7.2	41.8	2.0
	(0.08)	(1.27)	(0.25)	(1.25)	(1.12)	(0.87)	(0.48)	(0.94)	(0.12)
$i=N$	2.7	13.1	43.9	11.8	17.0	63.2	56.7	52.2	95.9
	(0.07)	(0.93)	(0.63)	(0.71)	(0.70)	(0.99)	(0.60)	(0.95)	(0.15)
(3) Aged 16-24, female, and white									
$i=E$	96.8	73.5	60.9	65.5	12.5	15.6	39.9	10.0	2.9
	(0.09)	(1.23)	(0.48)	(1.21)	(1.20)	(0.68)	(0.47)	(0.70)	(0.07)
$i=U$	0.7	15.6	2.4	21.7	65.9	18.3	4.1	31.6	1.3
	(0.05)	(0.77)	(0.14)	(0.97)	(1.29)	(0.73)	(0.25)	(0.75)	(0.06)
$i=N$	2.5	10.9	36.7	12.9	21.6	66.1	56.0	58.4	95.8
	(0.06)	(0.71)	(0.49)	(0.74)	(0.67)	(0.80)	(0.48)	(0.92)	(0.10)
(4) Aged 16-24, female, and non-white									
$i=E$	96.2	62.5	51.4	59.3	7.9	10.8	36.8	6.5	2.0
	(0.11)	(2.57)	(0.65)	(1.67)	(0.56)	(0.50)	(0.62)	(0.37)	(0.06)
$i=U$	1.0	23.5	3.8	27.6	71.7	23.5	5.3	36.0	1.7
	(0.06)	(1.67)	(0.22)	(1.35)	(0.99)	(0.94)	(0.41)	(0.89)	(0.12)
$i=N$	2.7	14.1	44.8	13.1	20.4	65.7	57.9	57.5	96.2
	(0.08)	(1.20)	(0.65)	(0.78)	(0.80)	(1.02)	(0.61)	(0.97)	(0.15)
(5) Aged 25-54, male, and white									
$i=E$	99.3	76.2	54.1	58.1	8.1	6.4	63.4	8.7	1.0
	(0.01)	(0.56)	(0.82)	(0.62)	(0.52)	(0.40)	(0.53)	(0.50)	(0.03)
$i=U$	0.4	19.5	2.9	36.8	84.5	31.2	7.1	48.4	0.6
	(0.01)	(0.48)	(0.18)	(0.63)	(0.54)	(0.89)	(0.28)	(0.76)	(0.03)
$i=N$	0.3	4.2	43.1	5.1	7.5	62.5	29.6	43.0	98.5
	(0.01)	(0.18)	(0.81)	(0.19)	(0.23)	(0.85)	(0.51)	(0.75)	(0.04)
(6) Aged 25-54, male, and non-white									
$i=E$	99.2	71.4	51.0	56.4	6.6	5.5	58.7	6.6	0.9
	(0.02)	(0.84)	(1.01)	(0.93)	(0.46)	(0.33)	(0.79)	(0.43)	(0.04)
$i=U$	0.4	22.7	3.5	37.3	84.4	34.5	6.8	45.0	0.7
	(0.02)	(0.77)	(0.23)	(0.91)	(0.60)	(0.93)	(0.32)	(0.93)	(0.03)
$i=N$	0.4	6.0	45.5	6.3	9.0	60.0	34.5	48.4	98.5
	(0.01)	(0.26)	(0.98)	(0.26)	(0.35)	(0.88)	(0.76)	(0.92)	(0.05)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G3 (Continued): Misclassification probabilities by subgroups, $\Pr\left(S_{t+1}=i|S^{*}_{t+1}=j,S_t=k\right)$

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(7) Aged 25-54, female, and white									
$i=E$	99.1	75.5	56.6	58.7	8.1	7.4	52.1	7.7	1.1
	(0.02)	(0.80)	(0.55)	(0.67)	(0.38)	(0.44)	(0.50)	(0.38)	(0.03)
$i=U$	0.3	18.7	2.3	32.1	81.6	27.0	5.0	40.8	0.5
	(0.01)	(0.65)	(0.13)	(0.68)	(0.50)	(0.76)	(0.18)	(0.81)	(0.02)
$i=N$	0.6	5.8	41.1	9.2	10.2	65.6	42.8	51.6	98.5
	(0.01)	(0.26)	(0.55)	(0.31)	(0.35)	(0.76)	(0.51)	(0.84)	(0.03)
(8) Aged 25-54, female, and non-white									
$i=E$	99.0	70.4	53.6	56.6	6.6	6.4	46.9	5.7	1.0
	(0.03)	(0.99)	(0.84)	(0.98)	(0.32)	(0.37)	(0.64)	(0.32)	(0.03)
$i=U$	0.3	21.6	2.8	32.2	81.1	30.3	4.7	37.3	0.6
	(0.02)	(0.79)	(0.17)	(0.99)	(0.52)	(0.93)	(0.22)	(0.74)	(0.03)
$i=N$	0.7	8.0	43.6	11.1	12.3	63.4	48.5	57.0	98.5
	(0.02)	(0.37)	(0.83)	(0.41)	(0.44)	(0.90)	(0.64)	(0.79)	(0.05)
(9) Aged 55 plus, male, and white									
$i=E$	98.9	73.3	53.8	56.5	4.4	4.8	46.4	5.8	0.4
	(0.03)	(1.31)	(0.64)	(0.95)	(0.52)	(0.43)	(0.61)	(0.66)	(0.01)
$i=U$	0.3	21.5	1.6	34.5	88.4	33.5	2.7	44.6	0.1
	(0.02)	(1.04)	(0.14)	(1.04)	(0.65)	(1.18)	(0.14)	(1.49)	(0.01)
$i=N$	0.8	5.2	44.6	8.9	7.2	61.7	51.0	49.6	99.4
	(0.02)	(0.56)	(0.64)	(0.48)	(0.47)	(1.17)	(0.63)	(1.40)	(0.02)
(10) Aged 55 plus, male, and non-white									
$i=E$	98.9	66.1	51.9	55.7	3.2	4.5	45.5	4.0	0.4
	(0.05)	(1.99)	(1.00)	(1.52)	(0.41)	(0.42)	(0.95)	(0.45)	(0.02)
$i=U$	0.3	26.4	1.6	35.1	88.4	33.2	2.7	41.7	0.1
	(0.03)	(1.63)	(0.19)	(1.64)	(0.87)	(1.66)	(0.21)	(1.71)	(0.01)
$i=N$	0.8	7.4	46.5	9.1	8.4	62.3	51.8	54.3	99.5
	(0.03)	(0.82)	(0.99)	(0.56)	(0.75)	(1.63)	(0.95)	(1.73)	(0.02)
(11) Aged 55 plus, female, and white									
$i=E$	98.9	77.5	48.5	58.1	5.6	4.1	44.2	6.7	0.3
	(0.04)	(1.15)	(0.77)	(1.04)	(0.54)	(0.37)	(0.57)	(0.72)	(0.01)
$i=U$	0.3	17.2	1.4	31.8	85.6	29.3	2.3	38.6	0.1
	(0.02)	(0.93)	(0.14)	(1.07)	(0.80)	(1.21)	(0.13)	(1.46)	(0.01)
$i=N$	0.8	5.3	50.0	10.1	8.9	66.6	53.5	54.7	99.6
	(0.03)	(0.58)	(0.78)	(0.56)	(0.69)	(1.18)	(0.57)	(1.49)	(0.01)
(12) Aged 55 plus, female, and non-white									
$i=E$	98.8	70.9	46.6	57.3	4.1	3.9	43.3	4.6	0.3
	(0.05)	(1.84)	(1.11)	(1.42)	(0.45)	(0.36)	(0.99)	(0.49)	(0.01)
$i=U$	0.3	21.4	1.5	32.3	85.5	29.0	2.3	36.0	0.1
	(0.02)	(1.53)	(0.19)	(1.47)	(1.12)	(1.88)	(0.18)	(1.63)	(0.01)
$i=N$	0.9	7.7	51.9	10.4	10.4	67.2	54.4	59.5	99.6
	(0.04)	(0.84)	(1.11)	(0.66)	(1.00)	(1.84)	(0.99)	(1.67)	(0.02)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G4: Testing the heterogeneity of misclassification probabilities, prime-age vs. young

	$\Delta^{p-y}_{i\|j,E,t}$			$\Delta^{p-y}_{i\|j,U,t}$			$\Delta^{p-y}_{i\|j,N,t}$			$\Delta^{p-y}_{i\|j,E,t+1}$			$\Delta^{p-y}_{i\|j,U,t+1}$			$\Delta^{p-y}_{i\|j,N,t+1}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Male and white																		
$i=E$	4.1***	8.6***	-4.8***	-2.7	-0.9	-11.3***	24.1***	0.8	-2.8***	2.8***	5.4***	-7.3***	-2.5*	-2.6*	-9.2***	24.1***	-0.6	-2.0***
	(0.12)	(2.06)	(0.87)	(2.13)	(0.79)	(0.88)	(0.80)	(0.76)	(0.12)	(0.10)	(1.20)	(0.96)	(1.27)	(1.54)	(0.80)	(0.68)	(1.05)	(0.09)
$i=U$	-0.9***	-2.0	0.8**	11.7***	12.1***	18.7***	2.9***	7.7***	-1.6***	-0.6***	0.6***	0.1	9.2***	13.4***	10.7***	1.5***	11.2***	-1.0***
	(0.07)	(1.42)	(0.37)	(1.85)	(0.83)	(1.54)	(0.60)	(1.34)	(0.13)	(0.07)	(0.90)	(0.25)	(1.20)	(1.66)	(1.20)	(0.41)	(1.21)	(0.07)
$i=N$	-3.2***	-6.6***	4.0***	-9.0***	-11.3***	-7.4***	-26.9***	-8.5***	4.3***	-2.1***	-6.0***	7.1***	-6.7***	-10.8***	-1.6	-25.6***	-10.6***	2.9***
	(0.08)	(0.83)	(0.87)	(0.84)	(0.64)	(1.44)	(0.71)	(1.52)	(0.18)	(0.05)	(0.64)	(0.95)	(0.73)	(0.62)	(1.24)	(0.69)	(1.18)	(0.12)
(2) Male and nonwhite																		
$i=E$	4.9***	15.8***	1.3	2.5	1.6***	-6.4***	22.0***	1.6**	-1.6***	3.3***	12.4***	-0.8	2.7	-0.0	-5.2***	22.6***	0.6	-1.2***
	(0.19)	(3.93)	(1.16)	(2.62)	(0.67)	(0.63)	(1.10)	(0.75)	(0.11)	(0.12)	(1.99)	(1.24)	(1.74)	(0.85)	(0.60)	(1.03)	(0.61)	(0.08)
$i=U$	-1.4***	-7.8***	-0.5	4.7**	6.3***	14.7***	0.7	0.1	-2.3***	-1.0***	-5.3***	-0.8***	2.9*	8.0***	8.4***	-0.3	3.2**	-1.3***
	(0.11)	(2.75)	(0.48)	(2.43)	(1.03)	(1.32)	(0.85)	(1.58)	(0.17)	(0.08)	(1.50)	(0.32)	(1.52)	(1.27)	(1.23)	(0.56)	(1.39)	(0.12)
$i=N$	-3.5***	-8.0***	-0.9	-7.2***	-8.0***	-8.4***	-22.6***	-1.6	3.9***	-2.3***	-7.1***	1.6	-5.5***	-7.9***	-3.2***	-22.3***	-3.8***	2.5***
	(0.13)	(1.42)	(1.08)	(0.83)	(0.79)	(1.31)	(0.97)	(1.58)	(0.21)	(0.08)	(0.96)	(1.19)	(0.77)	(0.78)	(1.28)	(1.00)	(1.36)	(0.16)
(3) Female and white																		
$i=E$	3.5***	5.2*	-2.0***	-7.0***	-2.8***	-10.4***	12.2***	-1.2	-2.5***	2.3***	2.0	-4.3***	-6.7***	-4.4***	-8.3***	12.3***	-2.3***	-1.8***
	(0.11)	(2.89)	(0.75)	(2.24)	(0.92)	(0.96)	(0.78)	(0.95)	(0.10)	(0.09)	(1.45)	(0.74)	(1.39)	(1.28)	(0.84)	(0.69)	(0.79)	(0.07)
$i=U$	-0.6***	0.4	0.3	12.6***	14.3***	16.6***	1.6***	5.7***	-1.4***	-0.4***	3.1***	-0.1	10.4***	15.8***	8.8***	0.9***	9.2***	-0.9***
	(0.06)	(1.82)	(0.27)	(1.82)	(1.09)	(1.24)	(0.45)	(1.40)	(0.09)	(0.05)	(1.01)	(0.19)	(1.18)	(1.40)	(1.00)	(0.30)	(1.13)	(0.06)
$i=N$	-2.9***	-5.6***	1.7**	-5.6***	-11.5***	-6.2***	-13.8***	-4.5***	3.9***	-1.9***	-5.1***	4.4***	-3.7***	-11.4***	-0.5	-13.2***	-6.8***	2.7***
	(0.09)	(1.22)	(0.76)	(0.99)	(0.81)	(1.25)	(0.74)	(1.50)	(0.14)	(0.06)	(0.75)	(0.74)	(0.82)	(0.76)	(1.09)	(0.71)	(1.25)	(0.10)
(4) Female and nonwhite																		
$i=E$	4.1***	11.4***	4.3***	-2.6	0.2	-5.6***	9.8***	-0.1	-1.4***	2.7***	7.9***	2.2***	-2.7	-1.3**	-4.4***	10.0***	-0.8*	-1.1***
	(0.19)	(4.78)	(1.08)	(2.86)	(0.92)	(0.70)	(0.94)	(0.98)	(0.10)	(0.11)	(2.71)	(1.09)	(1.94)	(0.65)	(0.64)	(0.91)	(0.48)	(0.07)
$i=U$	-1.0***	-4.6	-0.9***	5.9**	7.6***	13.0***	-0.2	-1.5	-2.0***	-0.7***	-1.9	-1.0***	4.6***	9.4***	6.8***	-0.6	1.4	-1.2***
	(0.10)	(3.04)	(0.39)	(2.57)	(1.28)	(1.37)	(0.66)	(1.51)	(0.17)	(0.07)	(1.83)	(0.28)	(1.65)	(1.14)	(1.29)	(0.46)	(1.16)	(0.12)
$i=N$	-3.1***	-6.8***	-3.4***	-3.3***	-7.7***	-7.4***	-9.6***	1.5	3.4***	-2.0***	-6.0***	-1.2	-1.9**	-8.1***	-2.4*	-9.5***	-0.5	2.2***
	(0.13)	(1.92)	(1.02)	(1.00)	(0.92)	(1.36)	(0.82)	(1.43)	(0.21)	(0.08)	(1.24)	(1.07)	(0.89)	(0.91)	(1.35)	(0.90)	(1.24)	(0.16)

Note: $\Delta^{p-y}_{i|j,k,\tau} = \Pr_p\left(S_\tau = i | S^*_\tau = j, S_{\tau-1} = k\right) - \Pr_y\left(S_\tau = i | S^*_\tau = j, S_{\tau-1} = k\right)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G5: Testing the heterogeneity of misclassification probabilities, prime-age vs. old

	$\Delta^{p-o}_{i\|j,E,t}$			$\Delta^{p-o}_{i\|j,U,t}$			$\Delta^{p-o}_{i\|j,N,t}$			$\Delta^{p-o}_{i\|j,E,t+1}$			$\Delta^{p-o}_{i\|j,U,t+1}$			$\Delta^{p-o}_{i\|j,N,t+1}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Male and white																		
$i=E$	0.7***	2.3*	0.8	2.0	4.4***	1.4**	19.3***	4.2***	0.9***	0.4***	3.0**	0.3	1.5	3.7***	1.6***	17.0***	2.8***	0.5***
	(0.05)	(1.28)	(1.07)	(1.29)	(0.84)	(0.70)	(1.00)	(0.92)	(0.06)	(0.03)	(1.43)	(1.05)	(1.16)	(0.75)	(0.60)	(0.81)	(0.85)	(0.04)
$i=U$	0.1***	0.2	2.7***	3.9***	-1.2	4.9***	6.1***	10.8***	1.1***	0.1***	-2.0*	1.3***	2.3*	-4.0***	-2.3	4.4***	3.8**	0.4***
	(0.03)	(1.00)	(0.30)	(1.38)	(1.20)	(1.61)	(0.40)	(1.80)	(0.06)	(0.02)	(1.16)	(0.23)	(1.24)	(0.86)	(1.50)	(0.31)	(1.71)	(0.03)
$i=N$	-0.8***	-2.5***	-3.5***	-5.8***	-3.2***	-6.3***	-25.4***	-15.0***	-2.1***	-0.4	-0.9	-1.5***	-3.8***	0.2	0.8	-21.4***	-6.6***	-1.0***
	(0.04)	(0.64)	(1.06)	(0.68)	(0.92)	(1.54)	(1.03)	(1.92)	(0.09)	(0.02)	(0.58)	(1.03)	(0.51)	(0.51)	(1.46)	(0.83)	(1.60)	(0.05)
(2) Male and nonwhite																		
$i=E$	0.6***	4.6**	-0.6	1.2	4.2***	0.6	15.3***	3.6***	0.8***	0.3***	5.2***	-0.9	0.7	3.4***	1.0*	13.2***	2.6***	0.5***
	(0.09)	(2.00)	(1.35)	(1.96)	(0.69)	(0.64)	(1.34)	(0.70)	(0.06)	(0.06)	(2.15)	(1.38)	(1.86)	(0.61)	(0.56)	(1.31)	(0.62)	(0.04)
$i=U$	0.1**	-0.8	3.8***	3.5	-1.0	9.3***	5.6***	10.2***	1.3***	0.1**	-3.8**	1.9***	2.1	-4.0***	1.3	4.1***	3.3*	0.5***
	(0.04)	(1.50)	(0.41)	(2.14)	(1.43)	(1.87)	(0.46)	(1.74)	(0.08)	(0.03)	(1.80)	(0.30)	(1.93)	(1.03)	(1.93)	(0.37)	(1.96)	(0.04)
$i=N$	-0.7***	-3.8***	-3.2***	-4.7***	-3.2***	-9.9***	-20.9***	-13.9***	-2.2***	-0.4***	-1.5*	-0.9	-2.9***	0.6	-2.3	-17.4***	-5.9***	-1.0***
	(0.07)	(0.97)	(1.30)	(0.81)	(1.26)	(1.80)	(1.36)	(1.91)	(0.10)	(0.04)	(0.85)	(1.34)	(0.61)	(0.81)	(1.86)	(1.29)	(1.96)	(0.06)
(3) Female and white																		
$i=E$	0.5***	-1.8	8.2***	1.3	2.8***	3.5***	10.0***	2.2**	1.2***	0.2***	-2.0	8.1***	0.6	2.6***	3.2***	7.9***	1.0	0.7***
	(0.06)	(1.66)	(1.08)	(1.39)	(0.92)	(0.68)	(0.88)	(0.98)	(0.05)	(0.04)	(1.45)	(0.96)	(1.28)	(0.67)	(0.58)	(0.76)	(0.83)	(0.03)
$i=U$	0.1***	2.7**	1.9***	1.2	-0.4	4.3***	3.6***	8.5***	0.9***	0.0**	1.5	0.8***	0.3	-3.9***	-2.2	2.7***	2.1	0.4***
	(0.03)	(1.23)	(0.23)	(1.43)	(1.54)	(1.31)	(0.27)	(1.75)	(0.04)	(0.02)	(1.16)	(0.19)	(1.31)	(0.95)	(1.43)	(0.23)	(1.71)	(0.02)
$i=N$	-0.6***	-0.9	-10.1***	-2.5***	-2.4*	-7.8***	-13.6***	-10.6***	-2.2***	-0.3***	0.5	-8.9***	-0.9	1.4*	-1.0	-10.7***	-3.1*	-1.1***
	(0.05)	(0.76)	(1.07)	(0.79)	(1.31)	(1.31)	(0.91)	(1.95)	(0.06)	(0.03)	(0.65)	(0.96)	(0.63)	(0.79)	(1.41)	(0.77)	(1.75)	(0.03)
(4) Female and nonwhite																		
$i=E$	0.3***	-0.4	7.1***	0.1	3.0***	2.5***	5.7***	2.0***	1.1***	0.1**	-0.5	7.0***	-0.7	2.5***	2.5***	3.6***	1.1*	0.6***
	(0.09)	(2.31)	(1.40)	(1.89)	(0.75)	(0.63)	(1.18)	(0.71)	(0.06)	(0.06)	(2.16)	(1.37)	(1.78)	(0.54)	(0.53)	(1.24)	(0.58)	(0.04)
$i=U$	0.1*	2.1	2.7***	0.5	-0.7	8.7***	3.1***	7.7***	1.1***	0.0	0.2	1.3***	-0.1	-4.4***	1.3	2.4***	1.4	0.5***
	(0.04)	(1.64)	(0.35)	(2.00)	(1.81)	(2.06)	(0.32)	(1.56)	(0.06)	(0.03)	(1.76)	(0.26)	(1.81)	(1.21)	(2.12)	(0.28)	(1.81)	(0.03)
$i=N$	-0.4***	-1.8	-9.8***	-0.6	-2.3	-11.2***	-8.8***	-9.7***	-2.2***	-0.2***	0.4	-8.3***	0.8	1.9*	-3.8*	-6.0***	-2.5	-1.1***
	(0.08)	(1.10)	(1.37)	(0.94)	(1.64)	(1.98)	(1.21)	(1.73)	(0.09)	(0.05)	(0.93)	(1.35)	(0.76)	(1.09)	(2.06)	(1.24)	(1.86)	(0.05)

Note: $\Delta^{p-o}_{i|j,k,\tau} = \Pr_p(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k) - \Pr_o(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G6: Testing the heterogeneity of misclassification probabilities, male vs. female

	$\Delta^{m-f}_{i\|j,E,t}$			$\Delta^{m-f}_{i\|j,U,t}$			$\Delta^{m-f}_{i\|j,N,t}$			$\Delta^{m-f}_{i\|j,E,t+1}$			$\Delta^{m-f}_{i\|j,U,t+1}$			$\Delta^{m-f}_{i\|j,N,t+1}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Aged 16-24 and white																		
$i=E$	-0.4***	-2.4**	0.2	-5.2***	-1.8***	-0.5	-0.5	-0.7	0.1	-0.3***	-2.7**	0.4	-4.9***	-1.8***	-0.1	-0.6	-0.7	0.1
	(0.10)	(1.11)	(0.42)	(0.78)	(0.76)	(0.31)	(0.41)	(0.59)	(0.08)	(0.07)	(1.37)	(0.47)	(0.75)	(0.55)	(0.26)	(0.47)	(0.50)	(0.06)
$i=U$	0.4***	3.0***	0.5***	6.7***	5.5***	2.9***	1.6***	5.2***	0.4***	0.3***	3.3***	0.3***	5.9***	5.2***	2.2***	1.5***	5.5***	0.2***
	(0.05)	(0.63)	(0.13)	(0.89)	(0.89)	(0.70)	(0.23)	(0.65)	(0.10)	(0.04)	(0.93)	(0.09)	(0.80)	(0.75)	(0.54)	(0.19)	(0.73)	(0.05)
$i=N$	-0.0	-0.6	-0.7*	-1.6***	-3.7***	-2.4***	-1.1***	-4.5***	-0.5***	-0.0	-0.6	-0.7	-1.0***	-3.4***	-2.1***	-0.9*	-4.8***	-0.3***
	(0.07)	(0.55)	(0.40)	(0.32)	(0.48)	(0.62)	(0.44)	(0.67)	(0.15)	(0.05)	(0.49)	(0.47)	(0.23)	(0.45)	(0.55)	(0.47)	(0.67)	(0.09)
(2) Aged 16-24 and nonwhite																		
$i=E$	-0.5***	-3.2***	0.3	-5.4***	-1.4***	-0.5**	-0.6	-0.4	0.1	-0.4***	-3.5**	0.4	-5.6***	-1.3***	-0.2	-0.7	-0.5	0.0
	(0.12)	(1.31)	(0.47)	(0.83)	(0.56)	(0.23)	(0.39)	(0.45)	(0.06)	(0.08)	(1.53)	(0.49)	(0.80)	(0.38)	(0.19)	(0.46)	(0.36)	(0.04)
$i=U$	0.5***	4.1***	0.8***	7.4***	5.1***	3.4***	2.1***	5.5***	0.5***	0.4***	4.5***	0.5***	6.8***	4.7***	2.7***	1.9***	5.8***	0.3***
	(0.07)	(0.77)	(0.20)	(0.97)	(0.75)	(0.79)	(0.29)	(0.69)	(0.12)	(0.05)	(1.06)	(0.13)	(0.88)	(0.62)	(0.62)	(0.24)	(0.74)	(0.06)
$i=N$	-0.0	-1.0	-1.0**	-2.0***	-3.8***	-2.9***	-1.5***	-5.1***	-0.6***	-0.0	-1.0*	-0.9*	-1.3***	-3.4***	-2.5***	-1.2***	-5.3***	-0.3***
	(0.08)	(0.66)	(0.45)	(0.34)	(0.48)	(0.70)	(0.44)	(0.66)	(0.15)	(0.05)	(0.57)	(0.49)	(0.25)	(0.44)	(0.61)	(0.47)	(0.68)	(0.08)
(3) Aged 25-54 and white																		
$i=E$	0.3***	0.9	-2.6***	-0.8	0.1	-1.4***	11.3***	1.3***	-0.2***	0.2***	0.7	-2.6***	-0.7	-0.0	-1.0***	11.2***	1.0***	-0.1***
	(0.03)	(0.72)	(0.67)	(0.66)	(0.44)	(0.24)	(0.55)	(0.36)	(0.05)	(0.02)	(0.82)	(0.74)	(0.63)	(0.34)	(0.19)	(0.52)	(0.33)	(0.03)
$i=U$	0.1***	0.6	1.0***	5.8***	3.3***	5.0***	2.9***	7.2***	0.2***	0.1***	0.8	0.6***	4.7***	2.8***	4.1***	2.1***	7.6***	0.1***
	(0.02)	(0.53)	(0.16)	(0.69)	(0.58)	(0.78)	(0.23)	(0.65)	(0.04)	(0.01)	(0.69)	(0.09)	(0.64)	(0.47)	(0.66)	(0.18)	(0.71)	(0.02)
$i=N$	-0.4***	-1.5***	1.6***	-5.0***	-3.4***	-3.6***	-14.2***	-8.5***	-0.1	-0.2***	-1.5***	2.0***	-4.1***	-2.8***	-3.1***	-13.3***	-8.6***	0.0
	(0.02)	(0.23)	(0.61)	(0.22)	(0.31)	(0.71)	(0.53)	(0.66)	(0.07)	(0.01)	(0.19)	(0.72)	(0.18)	(0.25)	(0.65)	(0.49)	(0.67)	(0.04)
(4) Aged 25-54 and nonwhite																		
$i=E$	0.4***	1.3	-2.7***	-0.3	0.1	-1.3***	11.6***	1.2***	-0.1***	0.2***	1.0	-2.6***	-0.2	0.0	-0.9***	11.9***	0.9***	-0.1***
	(0.03)	(0.83)	(0.70)	(0.63)	(0.37)	(0.20)	(0.54)	(0.28)	(0.04)	(0.02)	(0.93)	(0.75)	(0.61)	(0.29)	(0.17)	(0.52)	(0.26)	(0.03)
$i=U$	0.1***	0.9	1.2***	6.2***	3.9***	5.2***	3.0***	7.1***	0.3***	0.1***	1.1	0.7***	5.1***	3.3***	4.3***	2.1***	7.7***	0.1***
	(0.02)	(0.59)	(0.19)	(0.69)	(0.54)	(0.77)	(0.22)	(0.64)	(0.05)	(0.01)	(0.75)	(0.11)	(0.64)	(0.43)	(0.68)	(0.17)	(0.70)	(0.02)
$i=N$	-0.4***	-2.1***	1.5***	-5.9***	-4.0***	-3.9***	-14.5***	-8.3***	-0.1*	-0.3***	-2.1***	1.9***	-4.9***	-3.3***	-3.4***	-14.0***	-8.6***	-0.0
	(0.02)	(0.31)	(0.63)	(0.26)	(0.34)	(0.71)	(0.53)	(0.65)	(0.07)	(0.01)	(0.25)	(0.72)	(0.21)	(0.27)	(0.67)	(0.50)	(0.67)	(0.04)
(5) Aged 55 plus and white																		
$i=E$	0.1*	-3.1***	4.9***	-1.5	-1.5***	0.6***	2.0***	-0.7	0.1***	0.0	-4.2***	5.3***	-1.6*	-1.2***	0.6***	2.2***	-0.9**	0.1***
	(0.04)	(1.13)	(0.69)	(0.90)	(0.49)	(0.20)	(0.60)	(0.46)	(0.02)	(0.03)	(1.39)	(0.73)	(0.91)	(0.34)	(0.15)	(0.66)	(0.43)	(0.01)
$i=U$	0.0***	3.1***	0.1	3.1***	4.1***	4.5***	0.5***	4.9***	0.0***	0.0***	4.3***	0.1	2.7***	2.9***	4.2***	0.4***	5.9***	0.0***
	(0.02)	(0.82)	(0.12)	(1.05)	(0.95)	(1.46)	(0.12)	(1.12)	(0.01)	(0.01)	(1.18)	(0.09)	(0.98)	(0.64)	(1.28)	(0.11)	(1.32)	(0.01)
$i=N$	-0.1***	0.0	-5.0***	-1.6***	-2.6***	-5.1***	-2.4***	-4.2***	-0.2***	-0.1***	-0.1	-5.4***	-1.2***	-1.7***	-4.9***	-2.6***	-5.1***	-0.1***
	(0.04)	(0.42)	(0.68)	(0.36)	(0.71)	(1.34)	(0.63)	(1.17)	(0.02)	(0.02)	(0.32)	(0.72)	(0.26)	(0.45)	(1.22)	(0.68)	(1.31)	(0.02)
(6) Aged 55 plus and nonwhite																		
$i=E$	0.1*	-3.7***	5.0***	-1.4	-1.1***	0.6***	2.0***	-0.4	0.1***	0.0	-4.8***	5.3***	-1.6*	-0.9***	0.6***	2.2***	-0.6*	0.1***
	(0.05)	(1.37)	(0.71)	(0.92)	(0.37)	(0.19)	(0.60)	(0.32)	(0.02)	(0.03)	(1.59)	(0.73)	(0.93)	(0.26)	(0.14)	(0.66)	(0.30)	(0.01)
$i=U$	0.1***	3.8***	0.2	3.2***	4.2***	4.5***	0.5***	4.5***	0.0***	0.0***	5.0***	0.2*	2.8***	2.8***	4.2***	0.4***	5.7***	0.0***
	(0.02)	(0.96)	(0.12)	(1.09)	(0.96)	(1.49)	(0.13)	(1.08)	(0.01)	(0.01)	(1.34)	(0.09)	(1.01)	(0.66)	(1.26)	(0.11)	(1.32)	(0.01)
$i=N$	-0.1***	-0.1	-5.2***	-1.8***	-3.1***	-5.1***	-2.4***	-4.1***	-0.2***	-0.1***	-0.2	-5.4***	-1.2***	-2.0***	-4.8***	-2.6***	-5.2***	-0.1***
	(0.04)	(0.58)	(0.69)	(0.38)	(0.79)	(1.39)	(0.63)	(1.11)	(0.02)	(0.02)	(0.44)	(0.72)	(0.28)	(0.52)	(1.22)	(0.68)	(1.31)	(0.01)

Note: $\Delta^{m-f}_{i|j,k,\tau} = \Pr_m(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k) - \Pr_f(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G7: Testing the heterogeneity of misclassification probabilities, white vs. nonwhite

	$\Delta^{w-nw}_{i\|j,E,t}$			$\Delta^{w-nw}_{i\|j,U,t}$			$\Delta^{w-nw}_{i\|j,N,t}$			$\Delta^{w-nw}_{i\|j,E,t+1}$			$\Delta^{w-nw}_{i\|j,U,t+1}$			$\Delta^{w-nw}_{i\|j,N,t+1}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Aged 16-24 and male																		
$i=E$	0.9***	11.7***	9.3***	6.7***	4.4***	6.1***	2.8***	3.3***	1.3***	0.7***	11.8***	9.5***	6.7***	4.1***	4.9***	3.1***	3.3***	0.9***
	(0.16)	(2.07)	(0.55)	(1.05)	(0.65)	(0.41)	(0.49)	(0.49)	(0.09)	(0.10)	(1.74)	(0.58)	(1.11)	(0.84)	(0.32)	(0.58)	(0.63)	(0.06)
$i=U$	-0.6***	-8.4***	-2.4***	-7.2***	-5.7***	-8.0***	-1.7***	-4.5***	-0.9***	-0.4***	-9.0***	-1.6***	-6.8***	-5.3***	-5.7***	-1.6***	-4.7***	-0.5***
	(0.10)	(1.47)	(0.23)	(1.30)	(0.81)	(1.06)	(0.44)	(0.81)	(0.17)	(0.06)	(1.25)	(0.17)	(1.23)	(0.88)	(0.86)	(0.35)	(0.85)	(0.10)
$i=N$	-0.4***	-3.2***	-6.8***	0.5	1.3***	1.9**	-1.0*	1.1	-0.4*	-0.3***	-2.8***	-8.0***	0.1	1.3***	0.8	-1.5***	1.4	-0.4***
	(0.09)	(0.72)	(0.51)	(0.39)	(0.55)	(0.87)	(0.53)	(0.83)	(0.21)	(0.06)	(0.62)	(0.58)	(0.27)	(0.50)	(0.81)	(0.56)	(0.89)	(0.13)
(2) Aged 16-24 and female																		
$i=E$	0.8***	10.9***	9.3***	6.5***	4.9***	6.1***	2.7***	3.6***	1.3***	0.6***	11.0***	9.5***	6.1***	4.6***	4.8***	3.1***	3.5***	0.9***
	(0.14)	(2.12)	(0.55)	(1.08)	(0.62)	(0.42)	(0.49)	(0.47)	(0.08)	(0.09)	(1.76)	(0.58)	(1.03)	(0.82)	(0.32)	(0.58)	(0.59)	(0.06)
$i=U$	-0.4***	-7.3***	-2.2***	-6.6***	-6.1***	-7.5***	-1.3***	-4.1***	-0.8***	-0.3***	-7.8***	-1.4***	-5.9***	-5.8***	-5.2***	-1.2***	-4.4***	-0.4***
	(0.08)	(1.40)	(0.21)	(1.31)	(0.83)	(1.02)	(0.33)	(0.74)	(0.15)	(0.05)	(1.19)	(0.16)	(1.11)	(0.88)	(0.82)	(0.27)	(0.79)	(0.09)
$i=N$	-0.4***	-3.6***	-7.2***	0.1	1.2*	1.4	-1.4***	0.5	-0.5***	-0.3***	-3.2***	-8.1***	-0.2	1.2**	0.4	-1.9***	0.9	-0.5***
	(0.10)	(0.82)	(0.53)	(0.40)	(0.61)	(0.87)	(0.51)	(0.78)	(0.19)	(0.06)	(0.70)	(0.59)	(0.28)	(0.58)	(0.79)	(0.56)	(0.85)	(0.12)
(3) Aged 25-54 and male																		
$i=E$	0.1***	4.4***	3.1***	1.6*	1.9***	1.2***	4.9***	2.5***	0.2***	0.1***	4.9***	3.1***	1.6**	1.5***	0.9***	4.6***	2.1***	0.1***
	(0.03)	(0.67)	(0.75)	(0.82)	(0.33)	(0.22)	(0.58)	(0.29)	(0.05)	(0.02)	(0.75)	(0.81)	(0.81)	(0.27)	(0.19)	(0.57)	(0.26)	(0.03)
$i=U$	-0.0	-2.6***	-1.1***	-0.3	0.1	-4.0***	0.5*	3.2***	-0.2***	-0.0	-3.2***	-0.7***	-0.5	0.1	-3.4***	0.2	3.3***	-0.1***
	(0.02)	(0.55)	(0.20)	(0.87)	(0.48)	(0.87)	(0.26)	(0.71)	(0.05)	(0.01)	(0.66)	(0.12)	(0.82)	(0.41)	(0.78)	(0.22)	(0.75)	(0.02)
$i=N$	-0.1***	-1.8***	-2.0***	-1.3***	-2.0***	2.8***	-5.3***	-5.7***	0.0	-0.1***	-1.7***	-2.4***	-1.1***	-1.6***	2.5***	-4.9***	-5.4***	-0.0
	(0.01)	(0.20)	(0.67)	(0.17)	(0.30)	(0.80)	(0.55)	(0.74)	(0.08)	(0.01)	(0.18)	(0.77)	(0.14)	(0.25)	(0.76)	(0.53)	(0.75)	(0.04)
(4) Aged 25-54 and female																		
$i=E$	0.2***	4.7***	3.0***	2.0***	2.0***	1.3***	5.1***	2.4***	0.2***	0.2***	5.1***	3.0***	2.1***	1.5***	1.0***	5.3***	2.0***	0.1***
	(0.03)	(0.69)	(0.74)	(0.75)	(0.33)	(0.26)	(0.56)	(0.27)	(0.05)	(0.02)	(0.74)	(0.80)	(0.74)	(0.27)	(0.21)	(0.59)	(0.23)	(0.03)
$i=U$	-0.0	-2.3***	-0.9***	0.2	0.7	-3.9***	0.5***	3.1***	-0.2***	-0.0	-2.9***	-0.5***	-0.1	0.5	-3.2***	0.3**	3.4***	-0.1***
	(0.02)	(0.51)	(0.17)	(0.82)	(0.54)	(0.87)	(0.18)	(0.67)	(0.05)	(0.01)	(0.61)	(0.10)	(0.76)	(0.46)	(0.73)	(0.15)	(0.73)	(0.02)
$i=N$	-0.2***	-2.4***	-2.1***	-2.2***	-2.6***	2.6***	-5.6***	-5.5***	-0.0	-0.1***	-2.3***	-2.5***	-1.9***	-2.1***	2.2***	-5.6***	-5.4***	-0.0
	(0.02)	(0.27)	(0.67)	(0.27)	(0.37)	(0.79)	(0.57)	(0.71)	(0.07)	(0.02)	(0.24)	(0.77)	(0.22)	(0.32)	(0.72)	(0.58)	(0.74)	(0.04)
(5) Aged 55 plus and male																		
$i=E$	0.1	6.7***	1.8**	0.9	1.7***	0.4	0.8	2.0***	0.0**	0.0	7.2***	1.9**	0.8	1.2***	0.3*	0.9	1.8***	0.0**
	(0.07)	(1.48)	(0.81)	(1.36)	(0.43)	(0.25)	(0.85)	(0.43)	(0.02)	(0.04)	(1.70)	(0.87)	(1.38)	(0.30)	(0.18)	(0.94)	(0.40)	(0.01)
$i=U$	-0.0	-3.6***	-0.1	-0.6	0.3	0.4	-0.0	2.6*	0.0	-0.0	-4.9***	-0.0	-0.6	0.1	0.3	-0.0	2.9*	0.0
	(0.03)	(1.09)	(0.17)	(1.59)	(1.00)	(1.90)	(0.18)	(1.34)	(0.02)	(0.02)	(1.47)	(0.13)	(1.50)	(0.67)	(1.72)	(0.17)	(1.58)	(0.01)
$i=N$	-0.0	-3.1***	-1.7**	-0.2	-2.0***	-0.8	-0.8	-4.6***	-0.1*	-0.0	-2.3***	-1.9**	-0.2	-1.2***	-0.6	-0.9	-4.7***	-0.0*
	(0.05)	(0.62)	(0.79)	(0.47)	(0.79)	(1.73)	(0.88)	(1.39)	(0.03)	(0.03)	(0.48)	(0.85)	(0.34)	(0.51)	(1.63)	(0.95)	(1.57)	(0.02)
(6) Aged 55 plus and female																		
$i=E$	0.1	6.1***	1.9**	0.9	2.1***	0.3	0.8	2.2***	0.0**	0.0	6.6***	1.9**	0.8	1.5***	0.3*	0.9	2.1***	0.0**
	(0.07)	(1.33)	(0.85)	(1.30)	(0.51)	(0.22)	(0.83)	(0.48)	(0.02)	(0.04)	(1.55)	(0.86)	(1.32)	(0.36)	(0.15)	(0.94)	(0.45)	(0.01)
$i=U$	-0.0	-2.9***	-0.1	-0.5	0.4	0.5	-0.0	2.3*	0.0	-0.0	-4.2***	-0.0	-0.5	0.1	0.3	-0.0	2.7*	0.0
	(0.03)	(0.90)	(0.16)	(1.52)	(1.17)	(1.89)	(0.16)	(1.20)	(0.01)	(0.02)	(1.28)	(0.12)	(1.43)	(0.81)	(1.61)	(0.14)	(1.51)	(0.01)
$i=N$	-0.1	-3.2***	-1.8**	-0.3	-2.5***	-0.8	-0.8	-4.5***	-0.0*	-0.0	-2.4***	-1.9**	-0.3	-1.5***	-0.6	-0.9	-4.8***	-0.0*
	(0.06)	(0.63)	(0.83)	(0.51)	(0.92)	(1.76)	(0.86)	(1.31)	(0.02)	(0.03)	(0.50)	(0.86)	(0.37)	(0.62)	(1.54)	(0.95)	(1.53)	(0.01)

Note: $\Delta^{w-nw}_{i|j,k,\tau} = \Pr_w(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k) - \Pr_{nw}(S_\tau = i|S^*_\tau = j, S_{\tau-1} = k)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G8: Testing the stationarity of misclassification probabilities, by subgroups

	$\Delta_{i\|j,E}$			$\Delta_{i\|j,U}$			$\Delta_{i\|j,N}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(1) Aged 16-24, male, and white									
$i=E$	1.7***	-1.7	-8.0***	9.9***	-0.8	-3.0***	9.6***	-0.3	-1.4***
	(0.12)	(2.19)	(0.47)	(1.29)	(1.08)	(0.34)	(0.55)	(0.89)	(0.08)
$i=U$	-0.5***	2.3	-1.3***	-6.5***	3.3***	-11.1***	-0.6*	4.1***	-1.4***
	(0.07)	(1.50)	(0.15)	(1.35)	(1.41)	(0.80)	(0.34)	(1.19)	(0.09)
$i=N$	-1.2***	-0.6	9.3***	-3.4***	-2.5***	14.1***	-9.0***	-3.8***	2.8***
	(0.07)	(0.76)	(0.45)	(0.29)	(0.66)	(0.69)	(0.46)	(0.95)	(0.13)
(2) Aged 16-24, male, and non-white									
$i=E$	2.0***	-1.9	-8.3***	9.9***	-0.5	-1.8***	9.2***	-0.2	-1.0***
	(0.17)	(2.63)	(0.50)	(1.27)	(0.80)	(0.24)	(0.52)	(0.67)	(0.06)
$i=U$	-0.6***	2.9	-2.1***	-6.9***	3.0***	-13.3***	-0.8*	4.3***	-1.8***
	(0.11)	(1.86)	(0.22)	(1.44)	(1.20)	(0.81)	(0.44)	(1.22)	(0.10)
$i=N$	-1.4***	-1.0	10.4***	-3.0***	-2.5***	15.1***	-8.5***	-4.1***	2.8***
	(0.09)	(0.89)	(0.49)	(0.32)	(0.65)	(0.74)	(0.45)	(0.99)	(0.12)
(3) Aged 16-24, female, and white									
$i=E$	1.6***	-1.4	-8.2***	9.7***	-0.8	-3.4***	9.7***	-0.2	-1.4***
	(0.11)	(1.88)	(0.46)	(1.23)	(1.35)	(0.34)	(0.55)	(1.01)	(0.08)
$i=U$	-0.3***	2.0*	-1.1***	-5.7***	3.6**	-10.4***	-0.5*	3.8***	-1.2***
	(0.05)	(1.12)	(0.13)	(1.21)	(1.60)	(0.72)	(0.26)	(1.07)	(0.07)
$i=N$	-1.3***	-0.6	9.3***	-4.0***	-2.8***	13.8***	-9.2***	-3.6***	2.6***
	(0.07)	(0.82)	(0.45)	(0.31)	(0.72)	(0.64)	(0.47)	(0.94)	(0.11)
(4) Aged 16-24, female, and non-white									
$i=E$	1.8***	-1.5	-8.4***	10.0***	-0.6	-2.1***	9.3***	-0.1	-1.0***
	(0.15)	(2.33)	(0.51)	(1.30)	(1.00)	(0.24)	(0.51)	(0.78)	(0.06)
$i=U$	-0.5***	2.5*	-1.9***	-6.3***	3.4***	-12.7***	-0.5*	4.0***	-1.6***
	(0.08)	(1.45)	(0.18)	(1.42)	(1.37)	(0.74)	(0.33)	(1.12)	(0.09)
$i=N$	-1.4***	-1.0	10.3***	-3.7***	-2.8***	14.8***	-8.8***	-3.9***	2.5***
	(0.09)	(0.99)	(0.50)	(0.32)	(0.72)	(0.68)	(0.44)	(0.94)	(0.11)
(5) Aged 25-54, male, and white									
$i=E$	0.3***	-4.8***	-10.5***	10.1***	-2.5***	-0.9***	9.7***	-1.6***	-0.6***
	(0.02)	(0.83)	(0.60)	(0.66)	(0.40)	(0.18)	(0.40)	(0.45)	(0.04)
$i=U$	-0.2***	4.9***	-1.9***	-9.0***	4.6***	-19.1***	-2.0***	7.6***	-0.8***
	(0.01)	(0.67)	(0.15)	(0.71)	(0.44)	(0.81)	(0.23)	(0.66)	(0.04)
$i=N$	-0.2***	-0.1	12.5***	-1.1***	-2.0***	20.0***	-7.7***	-6.0***	1.4***
	(0.01)	(0.20)	(0.57)	(0.12)	(0.23)	(0.74)	(0.40)	(0.74)	(0.06)
(6) Aged 25-54, male, and non-white									
$i=E$	0.4***	-5.3***	-10.4***	10.1***	-2.1***	-0.6***	9.9***	-1.2***	-0.6***
	(0.02)	(0.94)	(0.62)	(0.64)	(0.34)	(0.16)	(0.40)	(0.36)	(0.04)
$i=U$	-0.2***	5.5***	-2.4***	-8.8***	4.6***	-19.7***	-1.8***	7.5***	-0.9***
	(0.02)	(0.73)	(0.20)	(0.71)	(0.42)	(0.83)	(0.22)	(0.66)	(0.05)
$i=N$	-0.2***	-0.2	12.9***	-1.3***	-2.5***	20.3***	-8.1***	-6.3***	1.5***
	(0.01)	(0.27)	(0.58)	(0.14)	(0.27)	(0.77)	(0.42)	(0.74)	(0.07)

Note: $\Delta_{i|j,k} = \Pr\left(S_{t+1} = i | S^*_{t+1} = j, S_t = k\right) - \Pr\left(S_t = i | S^*_t = j, S_{t-1} = k\right)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G8 (Continued): Testing the stationarity of misclassification probabilities, by subgroups

	$\Delta_{i\|j,E}$			$\Delta_{i\|j,U}$			$\Delta_{i\|j,N}$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
(7) Aged 25-54, female, and white									
$i=E$	0.4***	-4.6***	-10.5***	10.0***	-2.4***	-1.3***	9.8***	-1.3***	-0.7***
	(0.02)	(0.79)	(0.58)	(0.59)	(0.45)	(0.21)	(0.42)	(0.42)	(0.04)
$i=U$	-0.2***	4.7***	-1.5***	-7.9***	5.1***	-18.2***	-1.1***	7.2***	-0.6***
	(0.01)	(0.57)	(0.11)	(0.67)	(0.52)	(0.75)	(0.16)	(0.63)	(0.03)
$i=N$	-0.3***	-0.1	12.0***	-2.1***	-2.7***	19.5***	-8.6***	-5.9***	1.3***
	(0.01)	(0.27)	(0.55)	(0.20)	(0.31)	(0.69)	(0.44)	(0.74)	(0.05)
(8) Aged 25-54, female, and non-white									
$i=E$	0.5***	-5.0***	-10.6***	10.0***	-2.0***	-1.0***	9.6***	-0.9***	-0.6***
	(0.02)	(0.91)	(0.61)	(0.57)	(0.38)	(0.19)	(0.41)	(0.32)	(0.04)
$i=U$	-0.2***	5.2***	-1.9***	-7.6***	5.2***	-18.8***	-0.9***	6.9***	-0.8***
	(0.01)	(0.61)	(0.15)	(0.67)	(0.49)	(0.79)	(0.15)	(0.62)	(0.04)
$i=N$	-0.3***	-0.2	12.5***	-2.4***	-3.2***	19.8***	-8.7***	-6.0***	1.4***
	(0.02)	(0.37)	(0.57)	(0.23)	(0.35)	(0.73)	(0.44)	(0.71)	(0.06)
(9) Aged 55 plus, male, and white									
$i=E$	0.7***	-5.5***	-10.0***	10.6***	-1.9***	-1.1***	12.0***	-0.3	-0.2***
	(0.04)	(1.25)	(0.63)	(0.89)	(0.41)	(0.20)	(0.62)	(0.47)	(0.02)
$i=U$	-0.2***	7.1***	-0.5***	-7.4***	7.3***	-11.9***	-0.3***	14.7***	-0.1***
	(0.02)	(0.99)	(0.09)	(1.02)	(0.81)	(1.15)	(0.12)	(1.41)	(0.01)
$i=N$	-0.5***	-1.6***	10.5***	-3.2***	-5.5***	12.9***	-11.7***	-14.4***	0.3***
	(0.03)	(0.45)	(0.61)	(0.35)	(0.69)	(1.05)	(0.66)	(1.59)	(0.02)
(10) Aged 55 plus, male, and non-white									
$i=E$	0.7***	-5.9***	-10.1***	10.6***	-1.3***	-1.0***	11.9***	-0.1	-0.2***
	(0.05)	(1.49)	(0.65)	(0.89)	(0.30)	(0.18)	(0.62)	(0.33)	(0.02)
$i=U$	-0.2***	8.4***	-0.5***	-7.4***	7.6***	-11.7***	-0.3***	14.4***	-0.1***
	(0.02)	(1.18)	(0.10)	(1.04)	(0.85)	(1.12)	(0.13)	(1.43)	(0.01)
$i=N$	-0.5***	-2.5***	10.7***	-3.2***	-6.3***	12.7***	-11.6***	-14.3***	0.3***
	(0.04)	(0.63)	(0.63)	(0.38)	(0.80)	(1.04)	(0.65)	(1.55)	(0.02)
(11) Aged 55 plus, female, and white									
$i=E$	0.7***	-4.4***	-10.4***	10.7***	-2.2***	-1.1***	11.8***	-0.1	-0.2***
	(0.04)	(1.06)	(0.66)	(0.86)	(0.51)	(0.17)	(0.63)	(0.52)	(0.01)
$i=U$	-0.1***	5.9***	-0.5***	-7.0***	8.6***	-11.6***	-0.2***	13.6***	-0.1***
	(0.02)	(0.78)	(0.08)	(0.98)	(0.97)	(1.05)	(0.10)	(1.30)	(0.01)
$i=N$	-0.5***	-1.5***	10.9***	-3.7***	-6.4***	12.7***	-11.6***	-13.5***	0.3***
	(0.03)	(0.47)	(0.64)	(0.37)	(0.84)	(0.99)	(0.66)	(1.54)	(0.01)
(12) Aged 55 plus, female, and non-white									
$i=E$	0.7***	-4.9***	-10.4***	10.7***	-1.6***	-1.0***	11.7***	0.0	-0.2***
	(0.05)	(1.32)	(0.66)	(0.85)	(0.38)	(0.16)	(0.62)	(0.37)	(0.01)
$i=U$	-0.1***	7.2***	-0.5***	-7.0***	8.9***	-11.5***	-0.2***	13.2***	-0.1***
	(0.02)	(0.99)	(0.09)	(0.98)	(1.02)	(1.03)	(0.11)	(1.33)	(0.01)
$i=N$	-0.6***	-2.3***	10.9***	-3.7***	-7.4***	12.5***	-11.5***	-13.2***	0.2***
	(0.04)	(0.66)	(0.65)	(0.40)	(0.96)	(0.97)	(0.66)	(1.49)	(0.02)

Note: $\Delta_{i|j,k} = \Pr\left(S_{t+1}=i|S^*_{t+1}=j, S_t=k\right) - \Pr\left(S_t=i|S^*_t=j, S_{t-1}=k\right)$. In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G9: Robustness check for misclassification probabilities: using more flexible parametrization

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
Panel A: $\Pr(S_t=i\|S_t^*=j,S_{t-1}=k)$									
$i=E$	98.2	77.7	64.1	47.6	8.3	11.4	35.8	10.4	1.5
	(0.03)	(0.76)	(0.38)	(0.72)	(0.63)	(0.57)	(0.33)	(0.41)	(0.03)
$i=U$	0.6	14.7	3.5	39.6	75.5	42.0	5.5	32.3	0.9
	(0.02)	(0.55)	(0.18)	(0.67)	(0.63)	(0.48)	(0.21)	(0.65)	(0.03)
$i=N$	1.2	7.5	32.5	12.9	16.2	46.6	58.7	57.2	97.6
	(0.02)	(0.38)	(0.45)	(0.39)	(0.42)	(0.68)	(0.36)	(0.67)	(0.04)
Panel B: $\Pr\left(S_{t+1}=i\|S_{t+1}^*=j,S_t=k\right)$									
$i=E$	98.9	74.5	56.7	59.4	8.7	9.2	45.1	6.6	0.9
	(0.02)	(0.49)	(0.34)	(0.51)	(0.33)	(0.36)	(0.30)	(0.32)	(0.02)
$i=U$	0.4	18.8	2.5	32.1	79.6	25.3	4.3	39.2	0.5
	(0.01)	(0.38)	(0.13)	(0.51)	(0.40)	(0.66)	(0.16)	(0.50)	(0.02)
$i=N$	0.7	6.7	40.8	8.5	11.7	65.5	50.6	54.2	98.6
	(0.01)	(0.30)	(0.34)	(0.29)	(0.35)	(0.64)	(0.29)	(0.53)	(0.03)
Panel C: Testing the stationarity assumption, $\Pr\left(S_{t+1}\|S_{t+1}^*,S_t\right)-\Pr\left(S_t\|S_t^*,S_{t-1}\right)$									
$i=E$	0.7***	-3.2***	-7.4***	11.8***	0.4	-2.2***	9.3***	-3.8***	-0.6***
	(0.04)	(0.83)	(0.46)	(0.73)	(0.76)	(0.65)	(0.40)	(0.52)	(0.03)
$i=U$	-0.2***	4.1***	-0.9***	-7.4***	4.1***	-16.6***	-1.1***	6.9***	-0.4***
	(0.03)	(0.61)	(0.22)	(0.73)	(0.77)	(0.77)	(0.26)	(0.71)	(0.03)
$i=N$	-0.6***	-0.8*	8.3***	-4.4***	-4.5***	18.8***	-8.2***	-3.0***	1.0***
	(0.02)	(0.47)	(0.51)	(0.48)	(0.63)	(0.84)	(0.41)	(0.70)	(0.05)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G10: Robustness check for misclassification probabilities: sample attrition

	$k=E$			$k=U$			$k=N$		
	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$	$j=E$	$j=U$	$j=N$
Panel A: $\Pr(S_t=i\|S_t^*=j,S_{t-1}=k)$									
$i=E$	98.2	79.2	65.5	49.6	11.1	11.6	36.4	8.9	1.4
	(0.02)	(0.66)	(0.34)	(0.74)	(0.31)	(0.37)	(0.36)	(0.33)	(0.02)
$i=U$	0.6	13.5	3.4	38.7	72.2	40.0	5.1	30.9	0.9
	(0.01)	(0.45)	(0.11)	(0.68)	(0.39)	(0.70)	(0.21)	(0.55)	(0.02)
$i=N$	1.2	7.3	31.1	11.7	16.7	48.4	58.5	60.1	97.7
	(0.02)	(0.28)	(0.34)	(0.32)	(0.32)	(0.67)	(0.34)	(0.65)	(0.03)
Panel B: $\Pr(S_{t+1}=i\|S_{t+1}^*=j,S_t=k)$									
$i=E$	98.8	74.3	55.9	59.1	8.5	9.7	46.5	8.0	0.9
	(0.02)	(0.40)	(0.32)	(0.52)	(0.37)	(0.32)	(0.31)	(0.31)	(0.01)
$i=U$	0.4	18.6	2.4	31.6	78.7	26.1	4.6	38.8	0.5
	(0.01)	(0.31)	(0.09)	(0.46)	(0.47)	(0.51)	(0.16)	(0.47)	(0.01)
$i=N$	0.8	7.2	41.7	9.3	12.8	64.2	48.8	53.2	98.6
	(0.01)	(0.22)	(0.33)	(0.29)	(0.27)	(0.54)	(0.30)	(0.50)	(0.02)
Panel C: Testing the stationarity assumption, $\Pr(S_{t+1}\|S_{t+1}^*,S_t)-\Pr(S_t\|S_t^*,S_{t-1})$									
$i=E$	0.6***	-4.9***	-9.6***	9.5***	-2.6***	-1.9***	10.1***	-0.9***	-0.5***
	(0.02)	(0.60)	(0.35)	(0.50)	(0.36)	(0.21)	(0.34)	(0.37)	(0.02)
$i=U$	-0.2***	5.0***	-1.0***	-7.1***	6.5***	-13.9***	-0.4***	7.9***	-0.4***
	(0.01)	(0.42)	(0.08)	(0.56)	(0.51)	(0.63)	(0.14)	(0.60)	(0.02)
$i=N$	-0.4***	-0.2	10.6***	-2.4***	-3.9***	15.8***	-9.7***	-6.9***	0.9***
	(0.01)	(0.24)	(0.33)	(0.16)	(0.33)	(0.54)	(0.33)	(0.62)	(0.03)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G11: Transition probabilities by subgroups, averaged over 1996-2019

	$\Pr\left(\mathscr{S}_{t+1}=i \mid \mathscr{S}_t=j\right)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
(1) Aged 16-24, male, and white									
Reported	91.2	2.8	6.1	27.9	45.4	26.8	10.0	6.1	83.9
	(0.04)	(0.02)	(0.03)	(0.18)	(0.19)	(0.18)	(0.05)	(0.04)	(0.06)
Corrected	83.3	6.8	9.9	34.5	46.6	18.8	16.4	9.4	74.2
	(0.04)	(0.02)	(0.03)	(0.18)	(0.19)	(0.18)	(0.05)	(0.04)	(0.06)
Difference	-7.9***	4.1***	3.8***	6.7***	1.3	-8.0***	6.3***	3.3***	-9.7***
	(0.45)	(0.37)	(0.27)	(2.34)	(2.15)	(0.80)	(0.47)	(0.43)	(0.53)
(2) Aged 16-24, male, and non-white									
Reported	88.6	3.6	7.7	18.2	49.8	32.1	6.8	7.1	86.1
	(0.09)	(0.06)	(0.08)	(0.23)	(0.30)	(0.28)	(0.07)	(0.08)	(0.10)
Corrected	80.1	7.9	12.0	28.3	39.2	32.5	11.5	10.8	77.7
	(0.09)	(0.06)	(0.08)	(0.23)	(0.30)	(0.28)	(0.07)	(0.08)	(0.10)
Difference	-8.5***	4.3***	4.2***	10.2***	-10.6***	0.4	4.7***	3.7***	-8.4***
	(0.43)	(0.32)	(0.30)	(1.87)	(1.57)	(0.91)	(0.28)	(0.38)	(0.40)
(3) Aged 16-24, female, and white									
Reported	91.3	2.0	6.7	27.8	40.6	31.6	9.3	4.8	85.9
	(0.04)	(0.02)	(0.04)	(0.21)	(0.23)	(0.22)	(0.05)	(0.04)	(0.06)
Corrected	82.2	6.3	11.5	30.6	45.5	23.8	16.2	7.6	76.1
	(0.04)	(0.02)	(0.04)	(0.21)	(0.23)	(0.22)	(0.05)	(0.04)	(0.06)
Difference	-9.1***	4.3***	4.7***	2.8	5.0***	-7.7***	6.9***	2.9***	-9.8***
	(0.48)	(0.39)	(0.31)	(2.17)	(1.79)	(0.98)	(0.44)	(0.33)	(0.47)
(4) Aged 16-24, female, and non-white									
Reported	88.8	2.9	8.2	19.5	46.0	34.5	7.0	6.1	86.9
	(0.10)	(0.05)	(0.08)	(0.27)	(0.34)	(0.32)	(0.07)	(0.07)	(0.09)
Corrected	79.3	8.1	12.6	28.8	39.5	31.7	11.4	9.7	78.9
	(0.10)	(0.05)	(0.08)	(0.27)	(0.34)	(0.32)	(0.07)	(0.07)	(0.09)
Difference	-9.5***	5.2***	4.4***	9.3***	-6.5***	-2.8***	4.4***	3.6***	-8.0***
	(0.62)	(0.52)	(0.31)	(2.05)	(1.43)	(1.15)	(0.27)	(0.33)	(0.38)
(5) Aged 25-54, male, and white									
Reported	97.9	1.1	0.9	29.0	57.4	13.6	8.8	5.3	85.9
	(0.01)	(0.01)	(0.01)	(0.15)	(0.16)	(0.11)	(0.06)	(0.04)	(0.07)
Corrected	96.2	3.1	0.8	44.9	41.2	13.9	7.9	8.7	83.4
	(0.01)	(0.01)	(0.01)	(0.15)	(0.16)	(0.11)	(0.06)	(0.04)	(0.07)
Difference	-1.8***	2.0***	-0.2***	15.9***	-16.2***	0.3	-0.9***	3.4***	-2.5***
	(0.12)	(0.12)	(0.03)	(1.55)	(1.39)	(0.54)	(0.30)	(0.26)	(0.39)
(6) Aged 25-54, male, and non-white									
Reported	96.8	1.5	1.7	22.7	58.7	18.6	8.7	6.5	84.7
	(0.02)	(0.02)	(0.02)	(0.21)	(0.25)	(0.21)	(0.09)	(0.08)	(0.11)
Corrected	93.9	4.0	2.1	39.5	37.9	22.6	13.2	13.2	73.6
	(0.02)	(0.02)	(0.02)	(0.21)	(0.25)	(0.21)	(0.09)	(0.08)	(0.11)
Difference	-2.9***	2.5***	0.5***	16.8***	-20.8***	4.0***	4.5***	6.7***	-11.1***
	(0.14)	(0.14)	(0.06)	(1.14)	(0.98)	(0.70)	(0.34)	(0.33)	(0.42)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G11 (Continued): Transition probabilities by subgroups, averaged over 1996-2019

	$\Pr(\mathscr{S}_{t+1}=i \mid \mathscr{S}_t=j)$								
	$(E\|E)$	$(U\|E)$	$(N\|E)$	$(E\|U)$	$(U\|U)$	$(N\|U)$	$(E\|N)$	$(U\|N)$	$(N\|N)$
(7) Aged 25-54, female, and white									
Reported	97.0	0.9	2.1	25.2	52.0	22.8	6.1	2.8	91.1
	(0.01)	(0.01)	(0.01)	(0.14)	(0.17)	(0.15)	(0.03)	(0.02)	(0.03)
Corrected	95.1	2.4	2.5	34.9	43.9	21.2	9.7	4.6	85.7
	(0.01)	(0.01)	(0.01)	(0.14)	(0.17)	(0.15)	(0.03)	(0.02)	(0.03)
Difference	-1.9***	1.5***	0.4***	9.7***	-8.1***	-1.6*	3.6***	1.8***	-5.4***
	(0.13)	(0.10)	(0.10)	(1.30)	(1.16)	(0.84)	(0.30)	(0.16)	(0.32)
(8) Aged 25-54, female, and non-white									
Reported	96.4	1.2	2.4	19.3	56.2	24.5	6.6	4.6	88.9
	(0.02)	(0.01)	(0.02)	(0.20)	(0.25)	(0.22)	(0.05)	(0.04)	(0.07)
Corrected	93.0	3.6	3.5	31.3	39.9	28.8	11.0	9.0	79.9
	(0.02)	(0.01)	(0.02)	(0.20)	(0.25)	(0.22)	(0.05)	(0.04)	(0.07)
Difference	-3.4***	2.4***	1.1***	12.0***	-16.3***	4.3***	4.5***	4.5***	-8.9***
	(0.15)	(0.12)	(0.12)	(1.13)	(0.95)	(0.90)	(0.32)	(0.25)	(0.39)
(9) Aged 55 plus, male, and white									
Reported	95.9	0.8	3.3	22.5	55.4	22.2	2.1	0.6	97.3
	(0.02)	(0.01)	(0.02)	(0.27)	(0.33)	(0.26)	(0.01)	(0.01)	(0.02)
Corrected	93.3	2.1	4.5	37.5	34.1	28.4	3.7	1.0	95.3
	(0.02)	(0.01)	(0.02)	(0.27)	(0.33)	(0.26)	(0.01)	(0.01)	(0.02)
Difference	-2.6***	1.3***	1.3***	15.1***	-21.3***	6.3***	1.6***	0.4***	-2.0***
	(0.21)	(0.10)	(0.20)	(1.11)	(0.97)	(1.00)	(0.16)	(0.04)	(0.17)
(10) Aged 55 plus, male, and non-white									
Reported	95.2	1.1	3.7	16.9	56.3	26.8	2.0	1.0	97.0
	(0.07)	(0.03)	(0.06)	(0.51)	(0.66)	(0.57)	(0.04)	(0.02)	(0.04)
Corrected	90.1	4.0	5.9	36.3	28.3	35.4	3.8	2.4	93.9
	(0.07)	(0.03)	(0.06)	(0.51)	(0.66)	(0.57)	(0.04)	(0.02)	(0.04)
Difference	-5.1***	2.9***	2.2***	19.4***	-27.9***	8.6***	1.7***	1.4***	-3.1***
	(0.24)	(0.19)	(0.18)	(1.03)	(0.78)	(1.08)	(0.12)	(0.07)	(0.14)
(11) Aged 55 plus, female, and white									
Reported	95.4	0.7	3.8	21.6	52.2	26.3	1.5	0.4	98.1
	(0.03)	(0.01)	(0.02)	(0.30)	(0.35)	(0.32)	(0.01)	(0.01)	(0.01)
Corrected	92.8	2.5	4.7	38.2	33.3	28.6	2.3	0.7	97.1
	(0.03)	(0.01)	(0.02)	(0.30)	(0.35)	(0.32)	(0.01)	(0.01)	(0.01)
Difference	-2.6***	1.7***	0.9***	16.6***	-18.9***	2.3**	0.8***	0.3***	-1.1***
	(0.24)	(0.13)	(0.21)	(1.25)	(0.96)	(1.19)	(0.10)	(0.03)	(0.11)
(12) Aged 55 plus, female, and non-white									
Reported	94.8	0.9	4.3	17.9	52.0	30.1	1.6	0.7	97.7
	(0.07)	(0.03)	(0.07)	(0.58)	(0.74)	(0.66)	(0.03)	(0.02)	(0.03)
Corrected	89.0	4.7	6.3	38.3	26.9	34.8	2.5	1.7	95.8
	(0.07)	(0.03)	(0.07)	(0.58)	(0.74)	(0.66)	(0.03)	(0.02)	(0.03)
Difference	-5.8***	3.8***	2.0***	20.4***	-25.1***	4.7***	0.9***	1.0***	-1.9***
	(0.30)	(0.25)	(0.20)	(1.19)	(0.84)	(1.23)	(0.09)	(0.06)	(0.10)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G12: Transition probabilities with a lagged reported status by subgroups, averaged over 1996-2019

	$\Pr(S^*_{t+1}=i \mid S^*_t=j, S_{t-1}=k)$								
	$(E\|E,k)$	$(U\|E,k)$	$(N\|E,k)$	$(E\|U,k)$	$(U\|U,k)$	$(N\|U,k)$	$(E\|N,k)$	$(U\|N,k)$	$(N\|N,k)$
(1) Aged 16-24, male, and white									
$k=E$	93.1	3.7	3.2	51.3	35.4	13.3	60.5	19.4	20.1
	(0.34)	(0.31)	(0.14)	(2.57)	(1.99)	(1.10)	(1.25)	(0.86)	(0.90)
$k=U$	38.6	47.3	14.1	22.2	63.3	14.4	23.6	52.0	24.4
	(1.76)	(1.70)	(0.79)	(1.52)	(2.42)	(1.21)	(1.25)	(1.57)	(1.12)
$k=N$	26.0	15.3	58.6	25.1	43.7	31.2	6.5	4.5	89.0
	(1.12)	(0.79)	(1.28)	(1.22)	(1.44)	(1.42)	(0.34)	(0.29)	(0.40)
(2) Aged 16-24, male, and non-white									
$k=E$	92.5	3.6	3.9	47.1	28.6	24.3	55.8	20.9	23.3
	(0.32)	(0.27)	(0.19)	(2.74)	(1.45)	(1.55)	(0.92)	(0.74)	(0.71)
$k=U$	32.4	41.1	26.5	20.7	57.3	21.9	20.4	50.1	29.5
	(0.97)	(0.88)	(0.72)	(1.16)	(1.84)	(1.01)	(0.78)	(1.31)	(1.04)
$k=N$	29.3	20.8	49.9	22.8	28.2	49.0	4.5	4.8	90.7
	(0.90)	(0.74)	(0.97)	(0.85)	(1.01)	(1.13)	(0.25)	(0.32)	(0.37)
(3) Aged 16-24, female, and white									
$k=E$	92.0	3.3	4.7	46.6	34.5	19.0	65.5	15.6	18.9
	(0.32)	(0.30)	(0.18)	(2.74)	(1.76)	(1.50)	(1.44)	(1.00)	(1.04)
$k=U$	37.9	41.9	20.2	19.0	62.5	18.5	21.5	52.9	25.6
	(1.77)	(1.52)	(0.87)	(1.30)	(1.88)	(1.01)	(1.21)	(1.53)	(1.04)
$k=N$	27.5	17.4	55.1	24.3	42.0	33.8	4.6	3.4	92.0
	(1.26)	(0.94)	(1.46)	(1.05)	(1.36)	(1.43)	(0.23)	(0.23)	(0.27)
(4) Aged 16-24, female, and non-white									
$k=E$	91.8	4.0	4.2	47.5	28.0	24.4	56.0	21.2	22.9
	(0.46)	(0.43)	(0.21)	(3.05)	(1.36)	(1.91)	(0.92)	(0.81)	(0.77)
$k=U$	34.5	38.9	26.6	20.5	56.7	22.8	21.5	47.8	30.7
	(1.36)	(1.09)	(0.70)	(0.89)	(1.46)	(0.96)	(0.75)	(1.12)	(1.03)
$k=N$	27.1	22.1	50.8	22.7	32.5	44.9	4.0	5.0	91.0
	(0.97)	(0.86)	(1.03)	(0.84)	(1.20)	(1.23)	(0.21)	(0.32)	(0.36)
(5) Aged 25-54, male, and white									
$k=E$	98.1	1.6	0.3	58.1	32.2	9.7	38.1	25.2	36.7
	(0.08)	(0.08)	(0.02)	(1.75)	(1.53)	(0.60)	(1.43)	(0.97)	(1.31)
$k=U$	34.7	59.8	5.6	25.4	62.2	12.4	17.8	55.1	27.1
	(1.42)	(1.42)	(0.27)	(1.15)	(1.53)	(0.80)	(0.73)	(1.25)	(1.14)
$k=N$	44.2	23.8	32.0	21.9	36.6	41.4	1.1	1.4	97.6
	(1.18)	(0.97)	(1.18)	(0.72)	(1.17)	(1.28)	(0.05)	(0.07)	(0.09)
(6) Aged 25-54, male, and non-white									
$k=E$	97.2	2.0	0.8	57.9	28.3	13.8	52.2	24.7	23.1
	(0.12)	(0.12)	(0.04)	(1.36)	(1.17)	(0.75)	(1.08)	(0.84)	(0.86)
$k=U$	31.7	53.0	15.3	23.6	58.1	18.4	19.9	55.9	24.2
	(1.13)	(1.09)	(0.62)	(0.88)	(1.35)	(0.83)	(0.70)	(1.10)	(0.93)
$k=N$	34.6	25.9	39.5	18.9	28.5	52.6	2.3	3.1	94.5
	(1.09)	(0.87)	(1.16)	(0.63)	(0.89)	(1.04)	(0.10)	(0.13)	(0.16)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G12 (Continued): Transition probabilities with a lagged reported status by subgroups, averaged over 1996-2019

	$\Pr(S^*_{t+1}=i \mid S^*_t=j, S_{t-1}=k)$								
	$(E\|E,k)$	$(U\|E,k)$	$(N\|E,k)$	$(E\|U,k)$	$(U\|U,k)$	$(N\|U,k)$	$(E\|N,k)$	$(U\|N,k)$	$(N\|N,k)$
(7) Aged 25-54, female, and white									
$k=E$	98.1	1.2	0.8	47.0	34.9	18.2	54.8	9.6	35.6
	(0.07)	(0.07)	(0.04)	(1.74)	(1.46)	(1.05)	(1.26)	(0.58)	(1.09)
$k=U$	38.8	50.8	10.4	21.4	63.2	15.4	13.6	56.3	30.1
	(1.61)	(1.58)	(0.50)	(0.98)	(1.34)	(0.86)	(0.66)	(1.52)	(1.42)
$k=N$	38.1	14.1	47.8	27.1	38.6	34.3	1.4	1.2	97.4
	(1.26)	(0.73)	(1.46)	(0.97)	(1.43)	(1.58)	(0.07)	(0.06)	(0.09)
(8) Aged 25-54, female, and non-white									
$k=E$	97.3	1.6	1.1	54.0	27.6	18.4	62.0	18.1	19.9
	(0.10)	(0.09)	(0.05)	(1.49)	(1.12)	(1.01)	(1.22)	(0.79)	(0.93)
$k=U$	31.7	48.8	19.4	18.4	63.4	18.2	17.6	62.0	20.5
	(1.10)	(1.10)	(0.67)	(0.83)	(1.42)	(0.90)	(0.70)	(1.02)	(0.86)
$k=N$	34.1	22.2	43.6	16.5	31.8	51.7	1.9	2.4	95.7
	(1.23)	(0.93)	(1.47)	(0.63)	(1.14)	(1.22)	(0.09)	(0.12)	(0.15)
(9) Aged 55 plus, male, and white									
$k=E$	97.8	1.1	1.1	54.8	24.1	21.1	51.7	7.1	41.2
	(0.11)	(0.08)	(0.07)	(1.42)	(1.10)	(0.96)	(1.49)	(0.43)	(1.40)
$k=U$	32.2	48.5	19.3	21.7	60.3	18.0	24.2	45.0	30.8
	(1.08)	(1.10)	(0.62)	(0.83)	(1.25)	(0.77)	(0.67)	(1.22)	(1.07)
$k=N$	32.6	8.4	59.0	24.5	22.1	53.4	0.5	0.2	99.2
	(1.35)	(0.59)	(1.57)	(0.99)	(1.09)	(1.68)	(0.03)	(0.01)	(0.04)
(10) Aged 55 plus, male, and non-white									
$k=E$	95.8	2.3	2.0	54.2	23.9	21.9	52.5	22.2	25.2
	(0.20)	(0.18)	(0.10)	(1.04)	(0.63)	(0.88)	(0.99)	(0.81)	(0.83)
$k=U$	31.3	37.6	31.1	26.7	45.5	27.8	29.1	39.2	31.7
	(0.35)	(0.40)	(0.37)	(0.55)	(0.94)	(0.63)	(0.40)	(0.55)	(0.54)
$k=N$	23.3	20.9	55.9	21.5	21.5	57.0	1.0	0.9	98.1
	(0.63)	(0.73)	(1.00)	(0.78)	(0.64)	(1.14)	(0.04)	(0.05)	(0.06)
(11) Aged 55 plus, female, and white									
$k=E$	97.2	1.4	1.4	54.9	23.9	21.2	54.3	8.2	37.6
	(0.13)	(0.11)	(0.07)	(1.52)	(1.01)	(1.02)	(1.49)	(0.49)	(1.37)
$k=U$	31.7	45.6	22.7	20.9	59.6	19.6	23.6	43.8	32.6
	(0.78)	(0.86)	(0.64)	(0.71)	(1.11)	(0.78)	(0.63)	(1.02)	(1.04)
$k=N$	37.9	10.7	51.4	25.3	22.6	52.1	0.3	0.2	99.5
	(1.61)	(0.80)	(1.82)	(1.08)	(1.29)	(2.02)	(0.02)	(0.01)	(0.02)
(12) Aged 55 plus, female, and non-white									
$k=E$	95.3	2.8	2.0	56.5	23.7	19.8	50.4	23.4	26.2
	(0.25)	(0.23)	(0.10)	(1.11)	(0.62)	(0.94)	(1.04)	(0.81)	(0.87)
$k=U$	31.7	37.4	30.9	27.3	44.2	28.5	29.6	38.4	32.0
	(0.33)	(0.40)	(0.36)	(0.52)	(0.97)	(0.66)	(0.38)	(0.49)	(0.53)
$k=N$	25.1	22.1	52.8	21.4	22.5	56.1	0.7	0.7	98.6
	(0.79)	(0.88)	(1.12)	(0.82)	(0.71)	(1.19)	(0.03)	(0.04)	(0.05)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions.

Table G13: Testing the first-order Markov assumption by subgroups

	$\Delta^{p-q}_{i\|j} = \Pr(S^*_{t+1} = i \| S^*_t = j, S_{t-1} = p) - \Pr(S^*_{t+1} = i \| S^*_t = j, S_{t-1} = q)$								
	$\Delta^{p-q}_{E\|E}$	$\Delta^{p-q}_{U\|E}$	$\Delta^{p-q}_{N\|E}$	$\Delta^{p-q}_{E\|U}$	$\Delta^{p-q}_{U\|U}$	$\Delta^{p-q}_{N\|U}$	$\Delta^{p-q}_{E\|N}$	$\Delta^{p-q}_{U\|N}$	$\Delta^{p-q}_{N\|N}$
(1) Aged 16-24, male, and white									
$p = E, q = U$	54.5***	-43.6***	-10.9***	29.0***	-27.9***	-1.1	36.9***	-32.6***	-4.3***
	(1.56)	(1.50)	(0.77)	(1.86)	(1.93)	(1.90)	(1.71)	(1.64)	(1.36)
$p = E, q = N$	67.1***	-11.7***	-55.4***	26.1***	-8.2***	-17.9***	54.0***	14.9***	-68.9***
	(1.06)	(0.75)	(1.25)	(2.40)	(2.00)	(1.78)	(1.23)	(0.85)	(0.93)
$p = U, q = N$	12.6***	31.9***	-44.5***	-2.9*	19.7***	-16.8***	17.0***	47.5***	-64.5***
	(1.82)	(1.68)	(1.44)	(1.48)	(2.20)	(1.67)	(1.16)	(1.44)	(1.09)
(2) Aged 16-24, male, and non-white									
$p = E, q = U$	60.1***	-37.5***	-22.5***	26.4***	-28.8***	2.4	35.3***	-29.2***	-6.1***
	(0.87)	(0.81)	(0.71)	(2.15)	(1.46)	(2.12)	(1.17)	(1.51)	(1.17)
$p = E, q = N$	63.2***	-17.2***	-46.0***	24.4***	0.4	-24.7***	51.3***	16.0***	-67.3***
	(0.88)	(0.69)	(0.95)	(2.58)	(1.56)	(1.90)	(0.93)	(0.83)	(0.75)
$p = U, q = N$	3.1***	20.3***	-23.4***	-2.0*	29.2***	-27.1***	15.9***	45.2***	-61.2***
	(1.21)	(0.97)	(1.11)	(1.09)	(1.68)	(1.39)	(0.76)	(1.14)	(0.95)
(3) Aged 16-24, female, and white									
$p = E, q = U$	54.0***	-38.5***	-15.5***	27.6***	-28.1***	0.5	44.0***	-37.3***	-6.7***
	(1.60)	(1.34)	(0.88)	(2.04)	(1.72)	(1.94)	(1.96)	(1.84)	(1.42)
$p = E, q = N$	64.5***	-14.0***	-50.5***	22.3***	-7.5***	-14.8***	60.9***	12.2***	-73.1***
	(1.17)	(0.84)	(1.41)	(2.77)	(1.97)	(2.19)	(1.43)	(1.02)	(1.04)
$p = U, q = N$	10.5***	24.5***	-35.0***	-5.3***	20.6***	-15.3***	16.9***	49.5***	-66.4***
	(1.78)	(1.43)	(1.59)	(1.43)	(1.82)	(1.50)	(1.15)	(1.40)	(1.01)
(4) Aged 16-24, female, and non-white									
$p = E, q = U$	57.4***	-34.9***	-22.4***	27.1***	-28.7***	1.6	34.5***	-26.6***	-7.8***
	(1.09)	(0.86)	(0.71)	(2.71)	(1.48)	(2.20)	(1.22)	(1.45)	(1.26)
$p = E, q = N$	64.7***	-18.1***	-46.6***	24.9***	-4.4***	-20.4***	52.0***	16.2***	-68.1***
	(0.89)	(0.74)	(1.01)	(2.96)	(1.53)	(2.29)	(0.93)	(0.88)	(0.79)
$p = U, q = N$	7.4***	16.8***	-24.2***	-2.2**	24.3***	-22.1***	17.5***	42.8***	-60.3***
	(1.28)	(1.06)	(1.16)	(0.97)	(1.45)	(1.37)	(0.72)	(1.00)	(0.94)
(5) Aged 25-54, male, and white									
$p = E, q = U$	63.4***	-58.1***	-5.3***	32.8***	-30.0***	-2.7***	20.3***	-29.9***	9.6***
	(1.36)	(1.37)	(0.26)	(1.54)	(1.57)	(0.97)	(1.48)	(1.32)	(1.54)
$p = E, q = N$	53.9***	-22.2***	-31.7***	36.2***	-4.4***	-31.8***	37.0***	23.8***	-60.8***
	(1.16)	(0.95)	(1.17)	(1.79)	(1.80)	(1.38)	(1.42)	(0.96)	(1.30)
$p = U, q = N$	-9.5***	35.9***	-26.5***	3.4***	25.6***	-29.1***	16.7***	53.7***	-70.5***
	(1.49)	(1.28)	(1.13)	(1.25)	(1.70)	(1.33)	(0.72)	(1.24)	(1.13)
(6) Aged 25-54, male, and non-white									
$p = E, q = U$	65.5***	-51.0***	-14.5***	34.3***	-29.8***	-4.5***	32.3***	-31.2***	-1.1***
	(1.07)	(1.03)	(0.61)	(1.35)	(1.42)	(0.99)	(1.19)	(1.12)	(1.15)
$p = E, q = N$	62.5***	-23.9***	-38.7***	38.9***	-0.1	-38.8***	49.9***	21.6***	-71.5***
	(1.06)	(0.82)	(1.14)	(1.42)	(1.34)	(1.25)	(1.07)	(0.81)	(0.86)
$p = U, q = N$	-2.9***	27.1***	-24.2***	4.6***	29.6***	-34.2***	17.6***	52.8***	-70.4***
	(1.20)	(1.08)	(1.17)	(0.96)	(1.35)	(1.18)	(0.70)	(1.07)	(0.90)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

Table G13 (Continued): Testing the first-order Markov assumption by subgroups

	$\Delta_{i\|j}^{p-q} = \Pr\left(S_{t+1}^{*} = i \| S_t^{*} = j, S_{t-1} = p\right) - \Pr\left(S_{t+1}^{*} = i \| S_t^{*} = j, S_{t-1} = q\right)$								
	$\Delta_{E\|E}^{p-q}$	$\Delta_{U\|E}^{p-q}$	$\Delta_{N\|E}^{p-q}$	$\Delta_{E\|U}^{p-q}$	$\Delta_{U\|U}^{p-q}$	$\Delta_{N\|U}^{p-q}$	$\Delta_{E\|N}^{p-q}$	$\Delta_{U\|N}^{p-q}$	$\Delta_{N\|N}^{p-q}$
(7) Aged 25-54, female, and white									
$p = E$, $q = U$	59.3***	-49.6***	-9.6***	25.6***	-28.3***	2.7**	41.2***	-46.7***	5.5***
	(1.57)	(1.53)	(0.49)	(1.68)	(1.68)	(1.25)	(1.28)	(1.37)	(1.73)
$p = E$, $q = N$	59.9***	-12.9***	-47.0***	19.8***	-3.8**	-16.1***	53.4***	8.4***	-61.8***
	(1.23)	(0.70)	(1.44)	(1.87)	(1.88)	(1.90)	(1.24)	(0.57)	(1.08)
$p = U$, $q = N$	0.7	36.7***	-37.4***	-5.7***	24.6***	-18.8***	12.2***	55.1***	-67.3***
	(1.77)	(1.46)	(1.43)	(1.20)	(1.68)	(1.72)	(0.65)	(1.50)	(1.41)
(8) Aged 25-54, female, and non-white									
$p = E$, $q = U$	65.5***	-47.2***	-18.3***	35.6***	-35.8***	0.3	44.4***	-43.9***	-0.5
	(1.05)	(1.06)	(0.67)	(1.60)	(1.57)	(1.21)	(1.34)	(1.17)	(1.19)
$p = E$, $q = N$	63.1***	-20.6***	-42.5***	37.5***	-4.2***	-33.2***	60.1***	15.6***	-75.8***
	(1.20)	(0.90)	(1.44)	(1.48)	(1.50)	(1.53)	(1.21)	(0.78)	(0.92)
$p = U$, $q = N$	-2.4*	26.6***	-24.2***	1.9**	31.6***	-33.5***	15.7***	59.6***	-75.3***
	(1.36)	(1.22)	(1.47)	(0.84)	(1.53)	(1.36)	(0.70)	(1.00)	(0.83)
(9) Aged 55 plus, male, and white									
$p = E$, $q = U$	65.6***	-47.4***	-18.2***	33.1***	-36.2***	3.1***	27.5***	-37.9***	10.4***
	(1.03)	(1.05)	(0.62)	(1.47)	(1.42)	(1.12)	(1.49)	(1.10)	(1.55)
$p = E$, $q = N$	65.1***	-7.3***	-57.8***	30.3***	2.0	-32.3***	51.2***	6.9***	-58.0***
	(1.33)	(0.58)	(1.54)	(1.71)	(1.42)	(1.91)	(1.48)	(0.42)	(1.39)
$p = U$, $q = N$	-0.4	40.1***	-39.6***	-2.8***	38.2***	-35.4***	23.6***	44.8***	-68.4***
	(1.62)	(1.06)	(1.62)	(1.18)	(1.53)	(1.73)	(0.66)	(1.21)	(1.06)
(10) Aged 55 plus, male, and non-white									
$p = E$, $q = U$	64.4***	-35.3***	-29.1***	27.4***	-21.6***	-5.8***	23.4***	-17.0***	-6.4***
	(0.33)	(0.40)	(0.37)	(1.16)	(1.03)	(1.03)	(1.01)	(0.89)	(0.90)
$p = E$, $q = N$	72.5***	-18.6***	-53.9***	32.6***	2.5***	-35.1***	51.6***	21.3***	-72.9***
	(0.62)	(0.70)	(0.99)	(1.27)	(0.88)	(1.46)	(0.98)	(0.79)	(0.81)
$p = U$, $q = N$	8.1***	16.7***	-24.8***	5.2***	24.1***	-29.2***	28.1***	38.3***	-66.4***
	(0.72)	(0.75)	(1.05)	(0.85)	(1.07)	(1.32)	(0.39)	(0.54)	(0.52)
(11) Aged 55 plus, female, and white									
$p = E$, $q = U$	65.6***	-44.2***	-21.3***	34.0***	-35.7***	1.7	30.7***	-35.6***	4.9***
	(0.74)	(0.83)	(0.64)	(1.69)	(1.48)	(1.12)	(1.53)	(0.94)	(1.60)
$p = E$, $q = N$	59.4***	-9.4***	-50.0***	29.6***	1.3	-30.9***	54.0***	8.0***	-62.0***
	(1.57)	(0.78)	(1.79)	(1.89)	(1.51)	(2.23)	(1.49)	(0.48)	(1.37)
$p = U$, $q = N$	-6.2***	34.9***	-28.7***	-4.4***	37.0***	-32.5***	23.3***	43.6***	-66.9***
	(1.65)	(1.08)	(1.80)	(1.23)	(1.54)	(2.02)	(0.63)	(1.02)	(1.03)
(12) Aged 55 plus, female, and non-white									
$p = E$, $q = U$	63.6***	-34.6***	-29.0***	29.3***	-20.6***	-8.7***	20.8***	-15.0***	-5.8***
	(0.34)	(0.41)	(0.35)	(1.22)	(1.07)	(1.01)	(1.06)	(0.87)	(0.92)
$p = E$, $q = N$	70.2***	-19.3***	-50.9***	35.2***	1.2	-36.4***	49.7***	22.7***	-72.5***
	(0.76)	(0.81)	(1.09)	(1.40)	(0.90)	(1.52)	(1.03)	(0.79)	(0.86)
$p = U$, $q = N$	6.6***	15.3***	-21.9***	5.9***	21.8***	-27.7***	28.9***	37.7***	-66.6***
	(0.84)	(0.88)	(1.14)	(0.88)	(1.05)	(1.32)	(0.38)	(0.48)	(0.52)

Note: In parentheses are bootstrapped standard errors based on 500 repetitions. ***, **, * signify significance at the 1%, 5%, 10% level, respectively.

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