

# **Latent Class Modeling of Political Mobility: Implications for Legislative Recruitment, Representation and Institutional Development**

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## Abstract

Congressional scholars rely on legislators' career concerns to motivate theories of institutional development and legislative behavior. Previous studies, however, pay insufficient attention to political mobility – the movement of elites into and out of the public sector and between positions within it. We propose a flexible mixed Markov model for studying political mobility that can accommodate both heterogeneity and serial dependence – two common features of longitudinal career data – and apply it to an original dataset of career sequences for members of the House of Representatives between 1849 and 1944. We identify four latent classes exhibiting distinct patterns of political mobility and show how class membership changes over time. We find that class membership is related to members' occupational background and partisanship, regional differences and the size of the public sector. Class membership, in turn, is responsible for large differences in politicians' decisions to stay in offices, move elsewhere or leave politics altogether. We find that these same choices are also shaped by duration in office, party competition and states' adoption of Australian ballot reforms, with the effects varying by class. Overall, these findings illuminate the factors shaping political mobility in this formative era and with it, the nature of political recruitment and representation.

Political mobility – the movement of elites into and out of the public sector and between positions within it – is a defining feature of a political system. Every representative democracy must recruit qualified individuals to serve in public offices and channel their ambitions in socially productive ways. Political mobility also has critical implications for legislative behavior and the institutional development of the U.S. Congress. The behavior of legislators can be shaped by their previous experiences and prospective office goals (Schlesinger 1966). And, as Polsby (1968) and others (Squire 1992; Katz and Sala 1996) demonstrate, changing access to and the stability of legislative careers can spur changes in legislative organization and procedures.

Despite the importance of political mobility to legislative behavior and institutional development, empirically measuring its extent and causes has been difficult. Previous research focuses on discrete reelection and retirement choices by members of Congress (Kiewiet and Zeng 1993; Box-Steffensmeier and Jones 1997) or their transitions between pairs of offices such as the U.S. House and Senate (Rohde 1979). In doing so, these studies illuminate how electoral circumstances, intra-legislative influences and members' personal characteristics affect their decisions at particular moments in their political careers. However, in analyzing members' choices separately, previous research leaves open the question of whether these or other factors lead to different political mobility patterns across members of Congress and over time.

In this paper, we examine the political mobility of members of the U.S. House of Representatives between 1849 and 1944. Specifically, we use biographical information for 5,852 individuals who began their service in the House during this period to construct career sequences that track these politicians' movements into and out of the public sector, and between positions within it from age 25 to 73. This includes House members' occupancy of public

offices and private-sector positions before their congressional career begins and, for many, what members do once their time in Congress comes to an end.

We use latent class modeling to capture unobserved heterogeneity in the political mobility of members during this period. Specifically, we model this heterogeneity as a finite mixture of Markov chains. Such mixed Markov models, which have been used extensively in applied settings, including studies of labor force participation, criminality and other social behaviors, product acquisition and brand loyalty (Poulsen 1990; van de Pol and Langeheine 1990), enable us to partition members into discrete latent classes or segments that exhibit quite different political mobility patterns. We find striking variation in members' occupancy of and movement from particular offices, and in the extent to which the congressional career (and public service generally) dominates members' adult lifespan. We investigate the causes of members' assignment to latent segments and examine the effects of segment membership on members' decisions to continue in an office, move to another office or leave politics altogether.

The distinct political mobility patterns revealed by our latent class model reflect important cross-sectional and over-time differences in politicians' expectations about the possibilities of a political career in general and House service in particular, a key component shaping political ambition (Schlesinger 1966). To explain the distribution of members across latent segments, we take advantage of this period's unique variation in electoral system institutions, party competition, regional composition, and the personal characteristics of members. We find that occupational background, partisanship, regional differences and the supply of public offices contribute to the distinct political mobility patterns we identify. Segment membership in turn powerfully shapes individual career choices and conditions the effects of ballot reform, party competition and other factors. We conclude with a discussion of

how these differences in political mobility might enhance our understanding of legislative recruitment, Congress's institutional development and the behavior of its members.

### **The Promise and Pitfalls of Legislative Careers**

Previous research on political careers offers a mix of conceptual optimism and empirical frustration. On the one hand, scholars recognize how information about politicians' careers might contribute to our understanding of core concerns like representation, institutional development and government performance. Since Polsby (1968), for example, scholars have looked to changes in legislative careers to explain the institutional development of legislatures (Hibbing 1982; Squire 1992). Mayhew's (1974) study of the post-World War II Congress established career concerns as the primary (perhaps the only) motivation for legislative behavior. Jacobson and Kernell (1981) and many scholars since (see Fowler 1993; Carson and Roberts 2005) have used the decisions of legislators to leave office and of challengers to enter election contests as a barometer of the external environment and a mechanism for translating voters' demands into legislative action.

On the other hand, scholars' efforts to systematically connect politicians' careers to institutional development, legislative behavior and changes in the external environment have proved to be disappointing. Scholars have lamented how little we know about the career paths politicians follow to offices like the U.S. House and state governor (Matthews 1960) and our inability to connect legislators' previous political experiences to legislative behavior (Matthews 1984; MacKenzie and Kousser 2014). Part of the frustration lies in the complexity of career data and difficulties of usefully summarizing it for empirical analysis. This has led some scholars to

throw up their hands entirely.<sup>1</sup> Others have tackled the complexity of career data with elaborate measurement schemes. Among the most creative is Schlesinger's (1966) invention of "frequency trees" to capture politicians' movements leading up to U.S. Senate campaigns (see also Sabato 1983). More conventionally, Bogue et al. (1976) compile an exhaustive set of discrete indicators that document members' service at different levels of government. These data, including the binary indicator of whether a member previously held public office, constitute the core data in the *Roster of Congressional Officeholders* and scholars' primary strategy for measuring previous experience (Jacobson 1989; Carson and Roberts 2005; but see Canon 1990).

In recent years, aggregate-level analyses like Polsby's (1968) have been supplanted by individual-level choice models as the dominant mode for studying political careers. In these studies, the complexity of career data is ignored more often than overcome, with scholars treating the choice of each politician  $i$  at each time  $t$  as an independent observation. The advantage of these models is their ability to incorporate large numbers of data points. The cross-sectional and over-time variation in members' institutional settings, environmental factors and personal characteristics can then be exploited by quantitative analyses. Studies of congressional careers demonstrate the importance of all three factors, whether the analysis seeks to explain members' career choices within a single congress (Jacobson and Dimock 1994; Hall and Van Houweling 1995) or over a longer time period (Kiewiet and Zeng 1993; Brady et al. 1999).

Similar models have been applied to state legislative careers, exploiting cross-sectional variation in institutional and political settings (Berry et al. 2000; see Moncrief 1999). Scholars

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<sup>1</sup> These include Lasswell (1930, p. 303) who likened the political career to a disorderly "tangle of ladders, ropes, and runways that attract people from other activities at various stages of the process, and lead others to a dead end or a drop." As such, they defy systematic study.

have also used choice models to study discrete transitions between offices, beginning with Rohde's (1979) study of House members' moves to the Senate and state governor. In this study, all House members are assumed to prefer moving to these offices and differ only in the electoral and personal characteristics enabling them to do so. In addition to discrete transitions between the House and Senate (Francis 1993), previous research examines moves from state governor to Senate (Codispoti 1987), the House to federal administration (Palmer and Vogel 1995), Senate to the presidency (Abramson et al. 1987) and state legislature to the House (Berkman 1994; Maestas et al. 2006).

There are, however, three disadvantages of individual-level analyses of politicians' career choices as they are currently implemented. First, scholars typically pay little attention to the sequential structure of career data. The choices of politician  $i$  at times  $t-1$  and  $t$  are likely related, making the standard practice of treating them as independent observations problematic.<sup>2</sup> Second, the focus on particular subsets of choices (e.g., the career in Congress, transitions between offices  $j$  and  $k$ ) results in a silo effect. Knowledge generated in context-specific studies fails to cumulate and any broader sense of political mobility is lost.<sup>3</sup> Third, the transition structure in

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<sup>2</sup> The use of event history techniques (Box-Steffensmeier and Jones 1997; Fukumoto 2009) partially addresses this problem by conditioning the probability of staying in office, retiring or moving elsewhere on the length of time (or a function of it) spent in an office. In most event history studies, however, time is a “nuisance” variable and the effects of independent variables are not conditioned on past choices.

<sup>3</sup> The focus on particular subsets of politicians' careers also leads scholars to emphasize “local” factors (i.e., those internal to particular legislatures) possibly at the expense of external factors that might affect career choices across institutional contexts.

these studies is assumed to be the same for all individuals. Legislators might vary in electoral circumstances and personal characteristics that bear on outcomes, but they are homogenous in their baseline probability of making a particular choice and in their response to these and other stimuli. Here, the fault lies as much with theory as with empirical models. Studies of legislative behavior typically assume legislators are the same in terms of their basic goals (e.g., Mayhew 1974; Rohde 1979). But if legislators' goals do not vary at the individual level, they cannot be a source of differences in career choices nor other legislative behavior.

In this study, we propose a model of politicians' career choices that better incorporates the sequential structure of career data and allows for heterogeneity in their baseline probability of making a particular choice and response to stimuli. Like other scholars, we acknowledge the impossibility of directly measuring individual-level differences in preferences that might lead different individuals to do different things when facing a similar choice. Instead, we use a mixed Markov model that seeks to recover unobserved heterogeneity from observed career sequences. Using an original dataset of career sequences for 5,852 members of the U.S. House, we also overcome the limits of context-specific analyses by considering career choices exercised in the full array of offices available in the U.S. political system. Our analyses demonstrate that there were not one, but four distinct patterns of political mobility between 1849 and 1944. We link these patterns to several personal characteristics of legislators as well as regional and state-level differences in career settings. We also show how latent differences in political mobility shape the career choices of politicians and the effects of the electoral and institutional environment.

## Theory and Model of Latent Political Mobility

In his exhaustive study of political careers in the United States, Schlesinger (1966) distinguishes between ambitions that cannot be observed – “the hopes which lie in the hearts of young men running for their first offices” (p. 9) – and the type that might be inferred from aggregate career data – “which men are in the best position to become governor, senator, or President and, therefore, which men are likely to have such ambitions” (p. 15). Schlesinger argues that ambition flows from reasonable expectations that individual politicians and others affected by their choices might form, given their position within the political opportunity structure. If this is correct, then a well-developed understanding of political mobility – the mechanisms that recruit and propel politicians to and through public offices – is critical.<sup>4</sup> Unfortunately, what determines the “favorability” of particular positions is unclear. Schlesinger discusses how differences in manifest conditions (i.e., shared constituencies, responsibilities and political arenas) that make for natural linkages between pairs of offices, different institutional constellations (e.g., overlapping terms of office) and the preferences of voters might lead to heterogeneity in the direction of individual ambition and, by implication, political mobility. However, his method of identifying which sources of heterogeneity matter (and which might be safely ignored) is mostly ad hoc.

Rather than define the relevant subpopulations of politicians in advance based on specific criteria, such as demographic characteristics or geography, scholars might allow them to emerge post hoc using segmentation procedures applied to observed data. In this sense, we can conceive

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<sup>4</sup> This reverses the rationale of individual choice models, as summarized by Hall and Van Houweling (1995, p. 132), that “to understand these larger processes better, ..., we must comprehend the individual decisions upon which patterns of voluntary turnover depend.”

of the opportunity structure as a heterogeneous market composed of an unknown number of homogenous subpopulations, or segments, that exhibit similar behavior. In our context, the behavior of interest consists of politicians' movements into and out of the public sector and between positions within it. We believe the goal of this analysis, identifying distinct mobility patterns in the political system, remains faithful to Schlesinger's original conception even as we depart dramatically in our methods (post hoc, inductive and systematic versus a priori and deductive with ambiguous, unsystematic standards) of identifying relevant subpopulations.

But while identification of heterogeneity in political mobility is theoretically appealing, carrying it out empirically poses a couple of challenges. One challenge hinted at above lies in the inability of researchers to determine a priori and measure individual-level differences in the theoretically relevant sources of heterogeneity. Many sources of heterogeneity, including the "hopes which lie in the hearts," cannot be directly measured or easily modeled. A second challenge arises from the sequential structure of career data. Consecutive observations in a career sequence (e.g., status at times  $t-1$  and  $t$ ) are likely related, which makes treating them as independent (conditional on class membership) problematic.

In this section, we present a flexible model of individual-level career patterns that accommodates both heterogeneity and serial dependence.<sup>5</sup> We begin with a group of  $n$

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<sup>5</sup> The mixed Markov model we describe here is discussed extensively in Goodman (1961), Poulsen (1990), van de Pol and Langeheine (1990), Vermunt (1997), McLachlan and Peel (2000), and Dias and Vermunt (2007). While to our knowledge we are the first to apply this model to the study of political mobility, our discussion and use of notation in this section borrows heavily from these sources, especially Dias and Vermunt (2007), whose application to market segmentation in web usage served as a useful model for our study.

politicians denoted by  $i = 1, \dots, n$ . Each politician's political career is conceived as a sequence of office-holding events, office types, or states,  $\mathbf{x}_i$ . Let  $\mathbf{x} = (\mathbf{x}_1, \dots, \mathbf{x}_n)$  denote a sample of career sequences. We define  $X_{it}$  as a random variable indicating the state of politician  $i$  at time  $t$ ,  $x_{it}$  a realization of  $X_{it}$ , and  $t$  ranging from 0 to  $T_i$ . For practical purposes, we define a career sequence as beginning at age 25. Because end of life occurs at different times for different politicians, the exact length of the career sequence,  $T_i$ , will vary. As such, vectors  $\mathbf{X}_i$  and  $\mathbf{x}_i$  denote the sequence of states ( $X_{it}$  and  $x_{it}$ ) with  $t = 0, \dots, T_i$ .

The potentially long length of career sequences,  $T_i$ , makes the probability density  $P(\mathbf{X}_i = \mathbf{x}_i) = P(X_{i0} = x_{i0}, X_{i1} = x_{i1}, \dots, X_{iT_i} = x_{iT_i})$  difficult to characterize and empirically intractable.<sup>6</sup> One solution has been to assume that career sequences can be represented as a first-order Markov process, which simplifies  $P(\mathbf{X}_i = \mathbf{x}_i)$  considerably. Under this assumption, the occurrence of an office-holding event,  $X_t = x_t$ , depends only on the previous state,  $X_{t-1} = x_{t-1}$ . Conditional on  $X_{t-1}$ ,  $X_t$  is independent of states at all other time points. Thus, the future is independent of the past conditional on the present (Vermunt 2007).

The Markov property assumption makes it possible to incorporate serial dependence without making our empirical model intractable.<sup>7</sup> Under the Markov property, the probability density  $P(\mathbf{X}_i = \mathbf{x}_i)$  reduces to

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<sup>6</sup> The dimensionality of  $P(\mathbf{X}_i = \mathbf{x}_i)$  is equal to  $(T_i + 1)$ . In our empirical application, we define  $T_i$  in terms of discrete two-year intervals from age 25 to 73, meaning that  $1 \leq T_i \leq 25$ .

<sup>7</sup> Previous studies, including event history models of congressional careers, candidate entry, and transitions between discrete offices, have adopted this assumption, often implicitly by assuming conditional independence of  $X_t = x_t$ .

$$P(\mathbf{X}_i = \mathbf{x}_i) = P(X_{i0} = x_{i0}) \prod_{t=1}^{T_i} P(X_{it} = x_{it} | X_{i,t-1} = x_{i,t-1}) \quad (1)$$

where  $P(X_{i0} = x_{i0})$  is the initial distribution of politicians across states and  $P(X_{it} = x_{it} | X_{i,t-1} = x_{i,t-1})$  is the probability that politician  $i$  occupies state  $x_{it}$  at time  $t$ , conditional on occupying state  $x_{i,t-1}$  at time  $t-1$ . Here,  $P(\mathbf{X}_i = \mathbf{x}_i)$  is a first-order Markov chain and can be completely characterized by its initial distribution,  $\lambda_j = P(X_{i0} = j)$  and transition probabilities,  $a_{jk} = P(X_{it} = x_{it} | X_{i,t-1} = x_{i,t-1})$ . We assume that our transition probabilities remain constant across  $T$ , though it is possible to relax this assumption.

So far, our model treats individual politicians as interchangeable, with identical  $\lambda_j$  and especially  $a_{jk}$ . We might incorporate some amount of heterogeneity by, for example, conditioning  $a_{jk}$  on observed characteristics thought to influence political mobility. This is a standard practice in previous research on political careers. However, doing so assumes that the relationship between observed covariates and outcomes is the same for all individuals and at each time  $t$ . We might relax this assumption with a more flexible multi-level model where the effects of our covariates are allowed to vary depending on group-level characteristics.<sup>8</sup> But this presumes that we can identify the relevant groups and assign group membership in advance, a dubious proposition. Often, the heterogeneity that is most relevant cannot be observed or directly modeled. Moreover, assigning individual politicians to groups assumes the very heterogeneity that we might want to demonstrate through empirical analyses.

We depart from existing approaches to modeling heterogeneity based on observed characteristics by estimating a latent segment Markov chain (LSMC) model. In addition to the

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<sup>8</sup> Congressional scholars do this explicitly when they estimate, for example, separate models for Southern and non-Southern members of Congress.

assumptions described above, we assume that politicians are clustered into  $S$  segments, indicated by  $s = 1, \dots, S$ . We do not know the number of segments nor can we assign individual politicians to them a priori. Thus, segmentation is a latent characteristic with  $Z_i \in \{1, \dots, S\}$  indicating the latent segment of politician  $i$  with  $z_i$  a particular realization and  $\mathbf{z} = (z_1, \dots, z_n)$ . Since we cannot observe  $\mathbf{z}$  directly, the inference problem that we face is to estimate the parameters of our model,  $\varphi_i$ , using only information on  $\mathbf{x}$ . To do so, we obtain the marginal distribution of  $\mathbf{x}_i$ , which can be written as:

$$P(\mathbf{X}_i = \mathbf{x}_i; \varphi_i) = \sum_{s=1}^S \pi_s P(\mathbf{X}_i = \mathbf{x}_i | Z_i = s) \quad (2)$$

Equation 2 defines a finite mixture model with  $S$  latent segments, where  $\pi_s = P(Z_i = s)$  is the a priori probability that politician  $i$  is a member of segment  $s$ , with  $\pi_s > 0$  and  $\sum_{s=1}^S \pi_s = 1$ .

For each of the  $S$  latent segments, the career sequence  $\mathbf{x}_i$  is characterized by the probability distribution  $P(X_i = x_i | Z_i = s) = P(X_i = x_i | Z_i = s; \theta_s)$ . The  $\theta_s$  are segment specific parameters that include the initial probabilities,  $\lambda_{sj} = P(X_{i0} = j | Z_i = s)$ , and transition probabilities,  $a_{sjk} = P(X_{it} = k | X_{i,t-1} = j, Z_i = s)$ . These parameters are the same for all politicians within a segment, but vary across segments. Accordingly, the parameters to be estimated by the LSMC model are  $\varphi_i = (\pi_s, \dots, \pi_{s-1}, \theta_1, \dots, \theta_s)$ , which includes  $S-1$  prior probabilities,  $S(K-1)$  initial probabilities, and  $SK(K-1)$  transition probabilities, where  $K =$  the number of possible office-holding events, office types, or states. It is evident that the total number of parameters,  $SK^2 - 1$  increases rapidly with the number of latent segments and possible states.

While the large number of parameters to be estimated is a disadvantage of LSMC models, it is important to note that, as Dias and Vermunt (2007) point out, a probability distribution that is characterized by a finite mixture of Markov chains cannot be adequately

described by a single Markov chain. This implies that if political mobility is subject to significant unobserved heterogeneity, then modeling it with a single Markov chain or transition structure is inappropriate. By implication, a finite mixture model of Markov chains like the one presented above should outperform models of political mobility that ignore heterogeneity.

Under the assumption that the career sequences  $\mathbf{x}_i$  are independent observations, we can write the log-likelihood function as:

$$l(\varphi; \mathbf{x}) = \sum_{i=1}^n \log P(\mathbf{X}_i = \mathbf{x}_i; \varphi) \quad (3)$$

We estimate this function, which involves finding  $\hat{\varphi}$  that maximizes the likelihood of the observed  $\mathbf{x}$ , by means of maximum likelihood using the Latent Gold 4.5 software package (Vermunt and Magidson 2008). The program utilizes a customized version of the expectation maximization (EM) algorithm, which is an attractive option for estimating finite mixture models, such as ours, where the number of parameters is potentially large (see Dias and Willekens 2005; Vermunt 2010).

## **Data and Measurement of Latent Segments**

The data used in this study consist of complete career sequences and other relevant information for 5,852 individuals who began service in the House in the 31<sup>st</sup> to 78<sup>th</sup> congresses. These congresses cover the years between 1849 and 1944, an era characterized by large-scale upheaval in the House's internal organization and external environment. Our primary source of information is the *Biographical Directory of the United States Congress*, which describes the background, employment history, and public accomplishments of more than 12,000 individuals who served in the U.S. Congress. For House members who began service in this period, we

collected detailed information on their office-holding experiences and merged this with existing data on members' constituency characteristics, electoral circumstances, and institutional settings.

Assembling the sequence of offices held by each House member encompassed three steps. In Step 1, biographical information was transferred from the *Directory* to a database file. Each office that a member held was entered, with start and end dates for each instance of public service. In Step 2, public offices were assigned one of 20 values from a typology of local, state and federal offices. Each office type was given a letter code to distinguish it from other types. Service in a state legislature, for example, was denoted by the letter "R." In Step 3, the sequence of offices was constructed by assembling an "office-year string" for every office in the political career. Each string consists of a letter code for the office repeated once for each year the office was occupied. If a member served in the state legislature for four years, then the string "RRRR" would be added to the sequence. The office-year strings were then joined in chronological order to form a final career sequence.

This original dataset of career sequences enables us to conduct more detailed analyses of political mobility than existing studies that use one or more categorical variables to measure political experience which, though they record instances of service in different public offices, fail to capture the timing and order of office-holding events. In principle, our dataset enables us to locate every House member in a public office or private-sector setting in each year covered by the political career. However, to facilitate our empirical analyses, we organize our dataset in the following ways. First, we collapse our typology of local, state and federal offices into 10 office types, states or office-holding events. This simplifies the transition structure of our model, dramatically reduces the number of parameters we need to estimate, and ensures that we have a

sufficient number of events within each state for estimating our transition probabilities. The 10 states are listed in Table 1 with the number of observations for each.

**Table 1. U.S. House Members, Observations by Office Type**

	Politicians	Pol.-Yr.-States
High Federal	63	170
Federal Judge	193	1,066
Federal Administration	1,290	4,217
Senate	262	1,482
House	5,836	20,871
High State	516	1,395
State Administration	1,599	5,170
State Legislature	2,496	5,884
Local	2,520	8,918
Private	5,831	79,549
<b>Total</b>	<b>5,852</b>	<b>128,722</b>

Numbers in second column indicate unique individuals. Numbers in third column indicate unique politician-year-state observations.

Second, we define the career sequence as beginning at age 25 and lasting until age 73 or death, whichever comes first. While we lose a few instances of public office-holding by doing so, organizing our data in this way facilitates our discussion of the political career within the context of individual lifespans. Third, we collapse each sequence into two-year intervals; our unit of analysis is politician-year-states, with the office recorded for each member at age 25, 27, ..., 73.<sup>9</sup> Measuring office-holding events at two-year intervals accords with our expectations

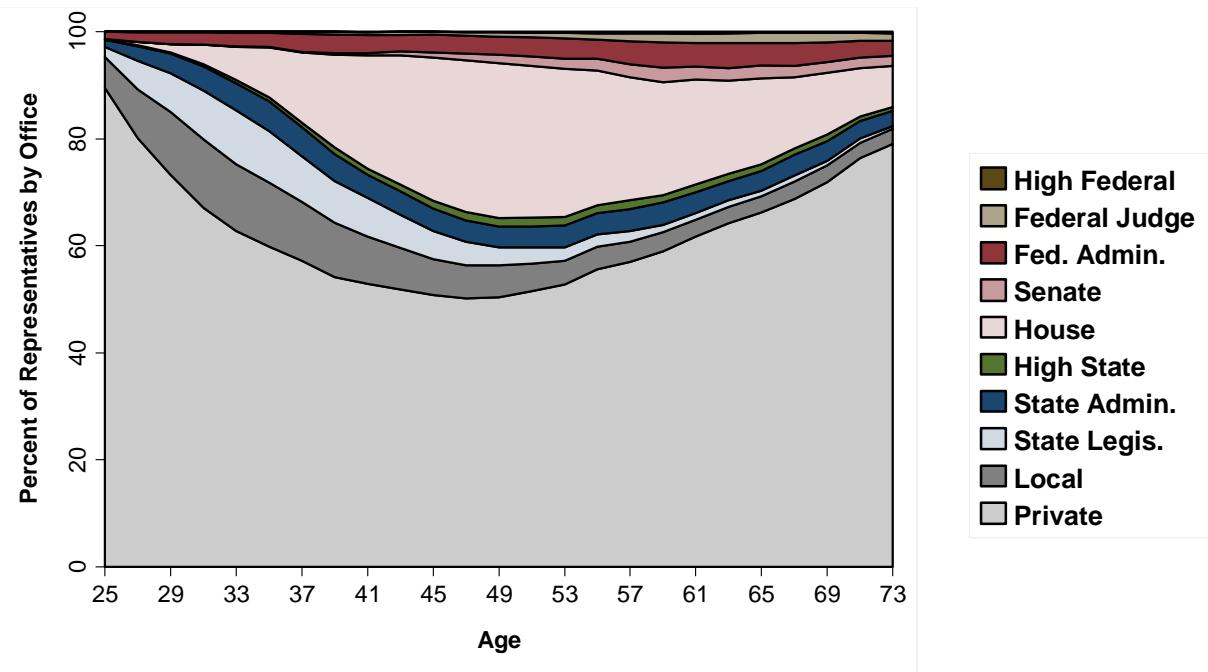
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<sup>9</sup> Specifically, we record the “highest” office occupied by each politician in each two-year interval, with the ranking of offices as: high federal, Senate, federal judge, House, high state, state legislature, federal administration, state administration, local, and private. Our results do not change if we simply record the state occupied at age 25, 27, ..., 73.

about the frequency with which politicians make career choices. In the House, for example, every member decides whether to run for reelection, retire or move on once every two years. While some offices (e.g., those with annual terms) might require more frequent decisions, a two-year interval strikes us as long enough to expect that a politician will make at least one decision, but perhaps not many more than this.

With the data organized in this fashion, we can investigate the distribution of politicians across office types or states over the course of the lifespan. Figure 1 plots the share of House members occupying each state at every two-year interval between the age of 25 and 73. One interesting feature is the dominance of private-sector activity in the adult lives of members. According to these data, the share of members occupying any public office never reaches 50 percent. Public office-holding peaks at age 47, when 49.8 percent of members are engaged in some form of public service. Not surprisingly, House service is the most popular non-private state, accounting for approximately 42.4 percent of the 49,173 two-year intervals where a member occupies a public office.

**Figure 1. Lifecycle of U.S. House Members, 1849-1944**



If we assume the Markov property and homogeneity in our transition structure – two assumptions adopted by nearly all previous studies of political careers – the Markov chain model (equivalent to a LSMC model with one latent segment, or 1-LSMC) can be summarized by its initial distribution,  $\lambda_j$ , and transition probability matrix,  $a_{jk}$ . The first column of Table 2 contains our estimates of  $\lambda_j$ . More than eight out of 10 House members are engaged in private-sector activity at age 25. The next most popular initial state is local with 6.7 percent. Figure 2 is a Markov map that displays our estimated transition probabilities,  $a_{jk}$ . The numbers indicate the share of transitions from each row state to each column state. For example, 72 percent of politicians located in the House at time  $t-1$  occupy the same state at time  $t$ , while 22 percent transition to private-sector activity. To facilitate our presentation, we depict transition probabilities of 0 and 1 with white and black shading, and values in between with a linear

grading of colors between white and black (Dias and Vermunt 2007). The darkest cells are on the diagonal indicating significant stability in place. Nonetheless, the proclivity of politicians to persist in a state varies substantially, from 45 percent for state legislators to 86 percent for the Senate (lengthy terms) and federal judiciary (lifetime appointments). We also note a tendency to return to private-sector activity, the most popular off-diagonal destination for all states.

**Table 2. Initial Distribution and Proportion of U.S. House Members in Latent Segments**

Aggregate	S = 4			
	1	2	3	4
Initial Distribution ( $\lambda_{sj}$ )				
High Federal	0.000	0.000	0.000	0.000
Federal Judge	0.000	0.000	0.002	0.000
Federal Administration	0.015	0.018	0.004	0.022
Senate	0.000	0.000	0.000	0.000
House	0.048	0.000	0.078	0.023
High State	0.004	0.003	0.001	0.000
State Administration	0.021	0.005	0.013	0.042
State Legislature	0.036	0.021	0.030	0.044
Local	0.067	0.093	0.042	0.065
Private	0.805	0.856	0.828	0.798
Proportion ( $\pi_s$ )	1.000	0.248	0.452	0.196
				0.102

**Figure 2. Markov Map for the 1-LSMC Model**

	High Federal	Federal Judge	Fed. Admin.	Senate	House	High State	State Admin.	Sate Legis.	Local	Private
High Federal	0.67	0.01	0.03	0.03	0	0.01	0	0	0	0.26
Federal Judge	0	0.86	0	0	0.03	0	0	0	0	0.1
Fed. Admin.	0	0	0.65	0	0.05	0.01	0.01	0.01	0.02	0.25
Senate	0.01	0	0.01	0.86	0	0	0	0	0	0.11
House	0	0	0.02	0.01	0.72	0.01	0.01	0	0.01	0.22
High State	0	0	0.02	0.01	0.07	0.63	0.02	0.01	0	0.23
State Admin.	0	0	0.01	0	0.09	0.01	0.66	0.02	0.02	0.19
State Legis.	0	0	0.02	0	0.13	0.01	0.03	0.45	0.04	0.32
Local	0	0	0.01	0	0.08	0	0.02	0.04	0.64	0.2
Private	0	0	0.01	0	0.06	0	0.02	0.03	0.03	0.85

NOTE: Values of zero indicate  $a_{jk} < .01$ .

#### *Selecting the Number of Latent Segments*

Like other applied settings where clustering models are employed, one of the more important theoretical and practical issues is to select the number of segments. For finite mixture models like ours, standard likelihood ratio tests are inappropriate (Dias and Vermunt 2007). Thus, most scholars rely on information criteria, such as the Bayesian Information Criterion (BIC), Akaike Information Criterion (AIC) or variants of the latter such as the AIC3 or CAIC,

which trade-off between a model’s goodness of fit and its complexity (Bozdogan 1987). Given two models with similar or identical log-likelihood values, the model with fewer parameters is preferred. In our context, the number of segments is determined by choosing the model that minimizes the value of the information criterion measure being used. Though none of these measures is intrinsically better than the rest, Monte Carlo studies suggest that the AIC3 outperforms the BIC and AIC measures in applications of segmentation models with discrete data such as ours (Andrews and Currim 2003; Dias and Vermunt 2007).

To incorporate heterogeneity into our model of political mobility, we allow for more than one segment. In these LSMC models, each politician belongs to exactly one of  $S$  latent segments, with each segment containing politicians exhibiting a similar mobility pattern. We estimated LSMC models with one to seven segments using the EM algorithm as implemented in Latent Gold. To assess and compare the quality of these models, we calculated the BIC, AIC, AIC3 and CAIC values for each model. Table 3 reports these values. Unfortunately, the four measures do not converge on a single-best model. Based on the BIC, two segments are necessary, while at least seven are necessary according to the AIC. Given that these measures are prone to under-fitting and over-fitting in applied market segmentation studies, we prefer the AIC3 measure. According to this measure, the three and four segment models are best, with the 4-LSMC model registering the lowest value.

**Table 3. Model Selection Criteria**

S	Log-likelihood	Information Criteria			
		BIC	AIC	AIC3	CAIC
1	-91271.87	183402.07	182741.75	182840.75	183501.07
2	-90818.27	183361.86	182034.54	182233.54	183560.86
3	-90555.17	183702.65	181708.35	182007.35	184001.65
4	-90401.25	184261.81	181600.51	181999.51	184660.81
5	-90305.16	184936.60	181608.32	182107.32	185435.60
6	-90196.24	185585.76	181590.49	182189.49	186184.76
7	-90070.81	186201.89	181539.62	182238.62	186900.89

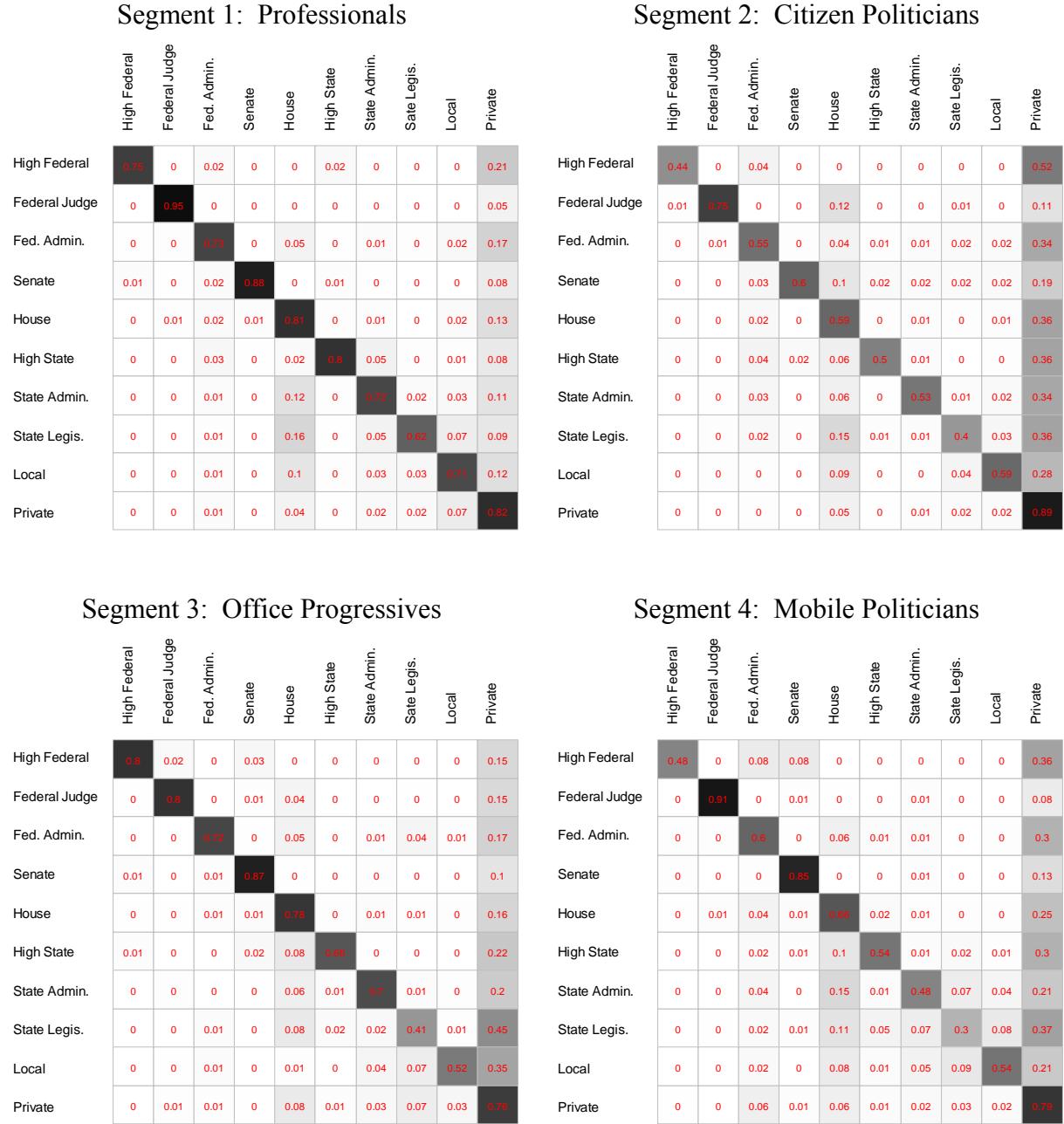
Table 2 reports the proportion of House members belonging to the four segments of the 4-LSMC model,  $\pi_s$ , as well as our estimates of the initial distributions,  $\lambda_j$ . Given our decision to define the career sequence as beginning at age 25 (the minimum age of eligibility for service in the U.S. House), it is not unexpected that the initial state for most members is private-sector activity. Nonetheless, there is some variation, with 14.4 percent of politicians in segment 1 occupying a public office at age 25 compared to 41.2 percent of politicians in segment 4. Interestingly, 7.8 percent of segment 2 and 7.5 percent of segment 4 politicians are in the House at age 25.

The estimated transition probabilities,  $a_{sjk}$ , for the 4-LSMC model offer more evidence of meaningful heterogeneity in political mobility. Figure 3 displays Markov maps for the four latent segments of the model. Segment 1, which describes approximately 25 percent of members, exhibits a great deal of stability. For most offices, three quarters or more of the transitions involve continuing in place. We tentatively label this segment “Professionals,” to denote the sustained dedication to public service and cautious progression to higher offices. In contrast, members of segment 2, the largest group, are highly likely to transition to private-sector activity, regardless of which public office they are currently occupying. Public service appears

to be quite transitory. Once placed in the private sector, however, most of these politicians continue there (89 percent). We label this segment “Citizen Politicians,” befitting the part-time nature of political careers among its members.

Segment 3, which describes approximately 20 percent of members, resembles segment 1 in terms of the likelihood of continuing in higher offices, such as the high federal, Senate and House states. For example, 78 percent of transitions by members currently in the House result in continuation, similar to the 81 percent we observe for segment 1. In contrast, only 59 percent of transitions by members currently in the House result in continuation for segment 2. The lower right quadrant of the map for segment 3 also indicates a great deal of movement between lower offices, such as the state administration and local states, and private-sector activity. We tentatively label this segment “Office Progressives,” a nod to the greater focus of its members on higher offices, like the House and Senate. The most dynamic mobility pattern is exhibited by segment 4, the smallest group with about 10 percent of members. With the exception of federal judges and senators, we observe a significant number of transitions out of most public offices. But unlike segment 2, few of these transitions are to the private sector. Members of segment 4 move much more freely between public offices than politicians in the three other segments. And the turnover rate of about 33 percent every two years indicates no special attachment to House service. Thus, we label this segment “Mobile Politicians” to denote their frequent movements.

**Figure 3. Markov Map for the 4-LSMC Model**



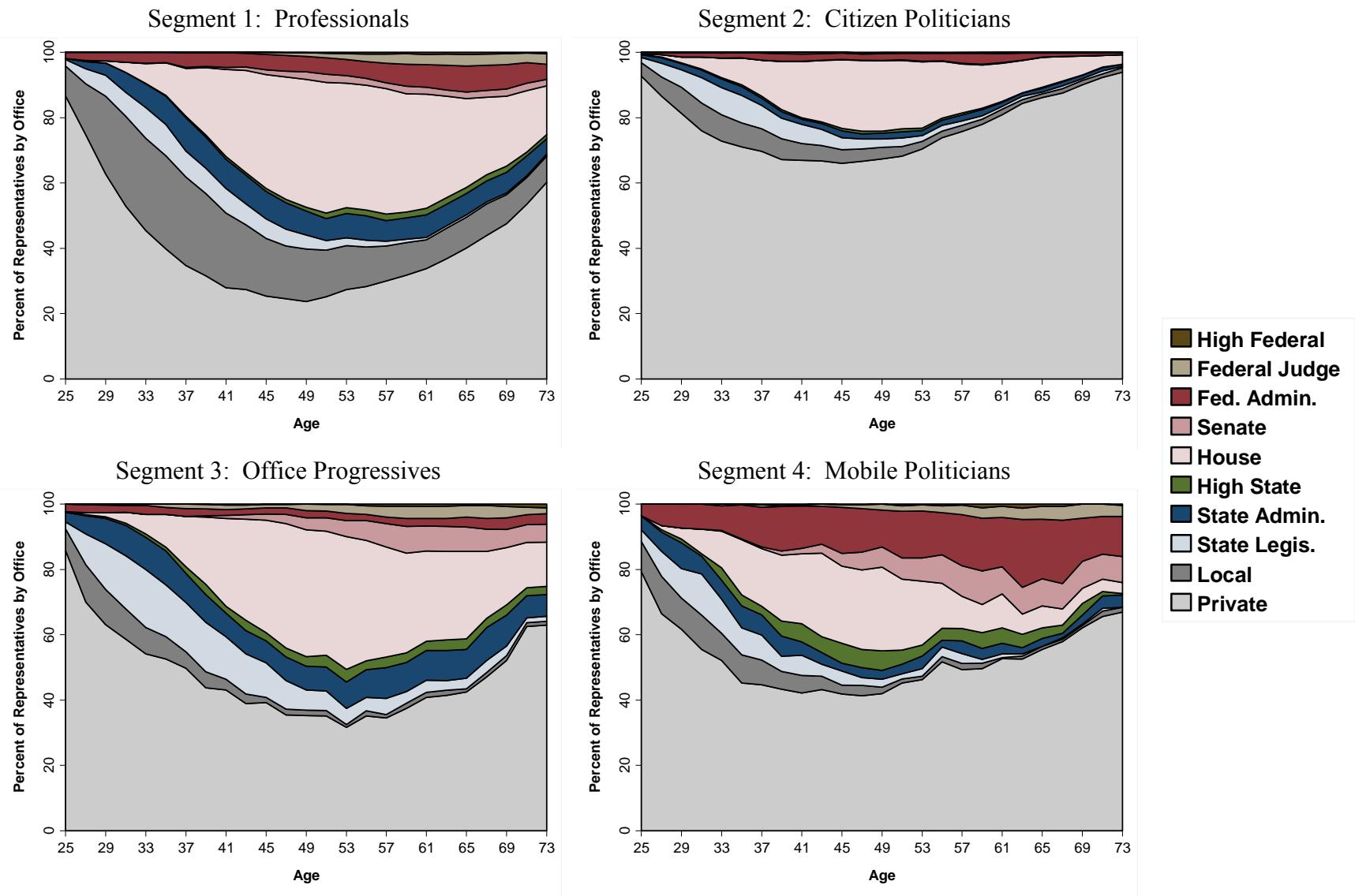
NOTE: Values of zero indicate  $a_{sjk} < .01$ .

The implications of these mobility patterns for political careers and the individual lifespan become clear in Figure 4, which plots for each segment the share of members occupying

each state at every two-year interval between age 25 and 73. The contrast between segments 1 and 2, the Professionals versus Citizen Politicians, is particularly noteworthy. In segment 1, public service dominates the adult lifespan. At age 49, for example, 76.4 percent of members are occupying some public office. In segment 2, private-sector activity accounts for the vast majority of politician-year-state observations. The share of members occupying a public office never reaches 35 percent. Segments 3 and 4, the Office Progressives and Mobile Politicians classes, also indicate a high degree of commitment to public service. Indeed, 39.9 percent of segment 1, 37.1 percent of segment 3, and 33.1 percent of segment 4 politicians are in public office at age 73.

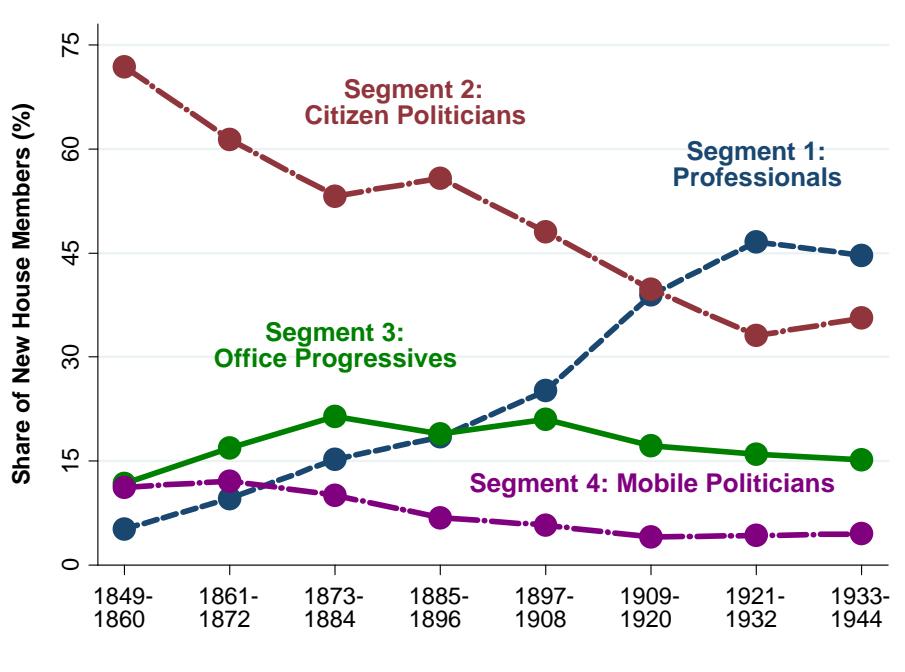
The lifecycle plots also show interesting variation in the mix of offices. For segments 1, 2 and 3, House service is by far the most important component of the political career. For segments 1 and 3, House service accounts for 38.9 and 42.0 percent of politician-year-state observations that involve public service. It is likely that these two segments contribute mightily to the growing ranks of House careerists described in previous studies (Polsby 1968; Shepsle 1988; Katz and Sala 1996). Higher offices, including the high federal, federal administration (which includes prestigious diplomatic posts such as U.S. Minister and Ambassador), federal judge and the Senate states account for a large share (38.5 percent) of non-private politician-year-state observations for segment 4. Local office figures prominently in the careers of segment 1 politicians (28.0 percent of non-private observations); state legislative service does likewise for segment 3 politicians (15.2 percent).

**Figure 4. Lifecycle of U.S. House Members by Latent Segment, 1849-1944**



Given what Polsby (1968) and other scholars have documented about changes in the House career during our period, we should expect to see a corresponding change in political mobility patterns. Specifically, we should observe a shift in the probability that a member belongs to segment  $s$ ,  $\pi_s$ , with those segments where House service accounts for a large share of office-holding events in the career sequence increasing their presence. Figure 5 plots the share of new members by latent segment for eight 12-year intervals between 1849 and 1944. The most striking feature is the declining share of new members belonging to segment 2, the Citizen Politicians class, and corresponding growth in the share belonging to segment 1, the Professionals class. In the first two intervals, segment 2 comprised 71.8 and 61.3 percent of new members. In the last two, segment 2 members comprise just 33.0 and 35.6 percent, respectively. The share of segment 1 members grows from just 5.1 percent before 1861 to 44.6 percent (a plurality) after 1932. We also observe a decrease in segment 4's (Mobile Politicians) share of new members while the share in segment 3, the Office Progressives class, fluctuates between 11 and 21 percent.

**Figure 5. New U.S. House Members by Latent Segment, 1849-1944**



These four distinct patterns of political mobility demonstrate the potential that incorporating unobserved heterogeneity more fully might have for improving our understanding of political careers. In comparing the two models in Table 2 and Figures 2 and 3, it is apparent that none of these four mobility patterns is characterized particularly well by the 1-LSMC model, which assumes a homogenous transition structure. Though we did not know in advance either the number of latent segments or the mobility patterns they would exhibit, these differences revealed by our finite mixture model warrant further investigation. Which House members end up in the various latent segments? How does segment membership impact a politician's chances of continuing in public service or moving up? Do politicians in different segments respond differently to electoral and institutional conditions? In the next section, we use observable characteristics to begin answering these questions and consider their implications for political recruitment and retention in office.

## Examining the Sources and Consequences of Segment Membership

The four distinct patterns of political mobility revealed by the 4-LSMC model raise important questions about political recruitment. One question concerns the assignment of politicians to different latent segments. Like many scholars, we are interested in identifying those factors that give shape to political mobility. In this sense, we can think of segment memberships as mobility outcomes dictated by structures of political opportunity (Schlesinger 1966). Another question is whether these same differences in political mobility might lead politicians to make different decisions when presented with similar choices. When faced, for example, with a discrete choice such as whether to remain in office, move elsewhere or leave politics altogether, do members of different latent segments do different things? If so, we would like to know whether their decision-making reflects heterogeneous responses to electoral, institutional and personal considerations. In this section, we outline our initial expectations about what factors influence segmentation and what consequences they have for career choices.

We analyze segment membership using a multinomial logit model. In our model, segment membership is a fixed characteristic of individual politicians. Thus, we are interested in examining the influence of relatively stable attributes of House members and their career settings. In addition to time, which we control for with two era-specific dummy variables (1880-1911 and 1912-1944), we examine two personal attributes that have held a longtime interest for scholars: occupational background and partisanship. Eulau and Sprague (1964) argue that legal and political careers are highly compatible, due to the value of legal expertise in the lawmaking process, the large number of available law enforcement offices, and the ease with which lawyers can reenter the legal community. In contrast, opportunity costs are high for businessmen, who often must give up profitable work to serve in public office. Similarly, Fiorina (1996) argues

that Democrats place a higher value on a political career than Republicans, in part due to the different occupational backgrounds of party regulars. Aldrich (1995) and Schlesinger (1966) also note how the party system is a source of structure and stability for political careers.

We theorize that regional and state-level differences might also contribute to the distinct political mobility patterns revealed by the 4-LSMC model. Previous research has commented on the tendency of Southern members to reach Congress with more political experience than non-Southern members and the ability of “courthouse gangs” in these states to keep their congressmen in place long enough to take advantage of the seniority norm governing members’ committee assignments in both chambers (Cooper 1970; Kousser 1974). Thus, we might expect that Southerners will be overrepresented in segments 1 and 3, the Professionals and Office Progressives classes, where House service dominates the adult lifespan, and comprise a relatively small share of segment 2, the Citizen Politicians class.

The structure of states’ economies might indirectly influence political mobility by exerting demands on government for institutional and policy innovation. Historians portray these demands as instrumental in driving the expansion of national administrative capacity between 1880 and 1920 (Wiebe 1967; Keller 1977; Skowronek 1982). It is possible that voters in more industrial areas turned to individuals with more political expertise to address mounting social and economic challenges. To assess this possibility, we take advantage of the uneven spread of industrialization between 1849 and 1944. Even as some states were rapidly industrializing, others were expanding agricultural production and relying on extractive

industries (Bensel 2000). We use census data to identify states characterized by high levels of manufacturing, an indicator of industrial development.<sup>10</sup>

Finally, the size of the public sector might influence political mobility by giving some politicians more and others less opportunity for public service. Wallis (2000) observes that government spending rose from 7.8 percent of gross national product in 1902 to 17.9 percent in 1940. Until the 1930s, state and local expenditures accounted for a majority of spending, with local governments having the largest share (Legler, Sylla and Wallis 1988). While we lack data on public employment, there is little doubt that the public sector's increasing size yielded a host of new federal, state and local government jobs. To assess whether the size of government might influence segment membership, we use data by Sylla, Legler, and Wallis (1995) to identify states with high levels of spending.<sup>11</sup> We expect that politicians from high revenue states will be

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<sup>10</sup> Six states (Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, and Rhode Island) ranked in upper quartile of states in manufacturing value per capita for every census year between 1870 and 1940. A seventh, Illinois, narrowly missed the cut in 1870, but ranked in the upper quartile every other census year. Our Industrial State variable takes the value 1 for members elected from these seven states, and 0 otherwise.

<sup>11</sup> Eighteen states (Arizona, California, Colorado, Connecticut, Idaho, Illinois, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Washington and Wyoming) ranked in the top half of states in revenue per capita in all four census years between 1902 and 1942. Our examination of the less complete sources of data that exist before 1900 suggest the relative rankings of states in revenue per capita are similar. Given the relative stability of the rankings, we use the rankings from census data collected after 1900 as a proxy for the relative size of each state's public sector during the 1849 to 1944 period.

overrepresented in segments 1 and 4, the Professionals and Mobile Politicians classes, where state and local offices constitute a substantial share of politician-year-state observations.

### *Segment Membership and Politicians' Career Choices*

Can segment membership shed light on politicians' decisions to continue in office, move elsewhere or leave politics altogether? To answer this question, we used our original career sequences data to create a four-valued variable that separates our politician-year-state observations into transitions that result in continuing in an office, moves to the private sector and moves to other offices. For the latter, we distinguish between upward moves (e.g., state legislature to House) and those that suggest downward mobility (e.g., high state to state administrative).<sup>12</sup> We analyze politicians' choices using a discrete time competing risks hazard model (Box-Steffensmeier and Jones 1997). In addition to segment membership, we examine the effects of electoral, institutional and personal attributes that previous studies suggest might influence members' choices. Given the diversity of offices we examine, we focus on broad aspects of the electoral and institutional environment as well as personal characteristics that vary over the course of a career.

One contribution of event history analyses of congressional career choices is the attention they give to duration dependence. Politicians' choices are conditional on surviving long enough

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<sup>12</sup> To judge the direction of office-to-office transitions, we separate our 10 office types or states into tiers: 1. high federal, 2. Senate, 3. federal judge, House, and high state, 4. state legislature and federal administration, 5. state administration and local. Upward moves involve moves within tiers or moves to offices in tiers with higher rankings. We also exclude transitions originating in the private sector from our analyses.

in an office to make a choice at time  $t$ . We account for duration dependence in our hazard model by counting the number of consecutive two-year intervals a politician has occupied a state at time  $t$  and taking its log transformation (see Box-Steffensmeier and Jones 1997). In general, we expect duration to decrease the probability of continuing while increasing the likelihood of moving up and, perhaps, opting for private-sector activity. We are also interested in examining whether members' sensitivity to time spent in an office depends on segment membership.

Previous research demonstrates that electoral vulnerability is a major factor dictating the retirement decisions of members of Congress (Kiewiet and Zeng 1993; Brady et al. 1999; Fukumoto 2009) as well as the entry decisions of challengers (Jacobson and Kernell 1981; Carson and Roberts 2005). We believe that a favorable electoral environment is conducive to political career development more generally. Politicians who enjoy large partisan advantages typically have more opportunities to serve and can remain longer in public offices. These opportunities extend to those serving in appointed offices, who depend on elected officials for appointment, promotion, and frequently serve at the pleasure of these officials. We expect that politicians who enjoy large partisan advantages will be more likely to continue in their current office and less likely to transition to private-sector activity than those lacking such advantages.<sup>13</sup> We expect that partisan advantage will have particularly large effects on members exhibiting the firmest commitment to public service, such as those in segments 1 and 3, the Professionals and Office Progressives classes.

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<sup>13</sup> To measure partisan advantage, we draw upon Brady et al. (1999). Specifically, we calculated the Democratic and Republican shares of the two-party vote for governor in each state. We used a linear interpolation to fill in values between election years and then smoothed our annual time series by taking a 12-year moving average of their respective state parties.

Previous research has examined the role of ballot reforms in shaping the electoral success and retirement decisions of members of Congress (Rusk 1970; Katz and Sala 1996; Engstrom and Kernell 2005; Brady et al 1999; Kernell 2010). In providing voters with an official ballot listing all qualified candidates and allowing voters to make their choices in secret, ballot reform made ticket-splitting easier and, at the very least, invited voters to consider politicians as individual claimants for an office rather than as members of a collective party team. In practice, enterprising House candidates could attempt to limit any damage wrought by a weak candidate at the head of the party's ticket by personally campaigning in their districts. In addition to benefitting congressional incumbents, ballot reform provided candidates for a litany of other state and local offices with similar incentives to cultivate a personal vote that was independent of their party (Cain, Ferejohn and Fiorina 1987). Moreover, following the adoption of the direct primary, politicians across the political system enjoyed greater autonomy in choosing whether to seek another term in a public office, move to another office or leave politics altogether.

Consistent with what other scholars have found, we expect ballot reform to have a large, positive impact on members' decisions to continue in an office and a negative impact on moves to private-sector activity. We have weaker priors about whether ballot reform will encourage or discourage upward mobility. On the one hand, the greater autonomy and resources enjoyed by politicians following reform might be used to pursue political opportunities elsewhere. On the other hand, by encouraging stability in place, reform might also add to the obstacles to doing so as good opportunities to move up (e.g., open seats) came around less frequently. As with electoral vulnerability, we are interested in whether segment membership influences politicians' responses to ballot reform. Theoretically, ballot reform ought to register its greatest effects on those with the firmest commitment to a political career.

Following previous research, we also control for the age of politicians as they make sequential career decisions. We expect age to increase stability in place as the potential benefits of moving to another position declines. Age might also increase the likelihood of leaving politics altogether, although this effect might also vary according to segment membership. Indeed, the ability to detect differences in the sensitivity to such personal considerations is an important contribution of segmentation analyses such as ours.

These hypotheses do not exhaust the possible sources of segment membership and, as previous studies demonstrate, the many factors dictating politicians' decisions to stay in office, move elsewhere or leave politics altogether. Nonetheless, given the wide variety of contexts we examine, our models are necessarily spare. We believe that the value added of our analyses is not to replicate findings that apply to specific institutional contexts, such as state legislatures or the U.S. House, but to draw scholars' attention to a few broad electoral, institutional and personal characteristics driving cross-sectional and over-time differences in political mobility.

## Results

The results of our analyses of segment membership offer further evidence for the large over-time changes in political mobility presented in Figure 5. They also indicate that such personal attributes as occupation and partisanship, regional differences and the size of the public sector exert significant influence over the assignment of politicians to latent segments. Through their effects on segment membership, these and other factors powerfully shape the career choices of politicians between 1849 and 1944. Indeed, segment membership is responsible for large differences in the probability of continuing in office and leaving politics altogether. We find that these same choices are shaped by favorability of the electoral environment and states' adoption

of Australian ballot reforms, with the precise effects varying by segment. Overall, these findings illuminate the factors shaping political mobility in this formative era and with it, the nature of political recruitment and representation.

#### *Occupational, Partisan and Period Effects on Segment Membership*

The substantial over-time changes in political mobility patterns are evident in Table 5, which plots first differences from our multinomial logit model of segment membership. Large and positive first differences for our dichotomous indicators that identify when each politician first reached the House reinforce the descriptive trends in Figure 5. The difference between the first cohort (1849-1879) and second cohort (1880-1911) in the probability of belonging to segment 1, the Professionals class, is .12. The difference in the probability of belonging to segments 2 and 4, the Citizen Politicians and Mobile Politicians classes, are -.11 and -.04. Differences between the first and third cohorts are even larger.

**Table 5. First Difference Estimates of Segment Membership**

Changing this... from to			...changes the probability of segment membership by...			
			S1. Professionals	S2. Citizen Politicians	S3. Office Progressives	S4. Mobile Politicians
Business	No	Yes	<b>-0.021</b> (-0.030, -0.011)	<b>0.137</b> (0.109, 0.165)	<b>-0.079</b> (-0.099, -0.058)	<b>-0.037</b> (-0.057, -0.018)
Republican	No	Yes	-0.006 (-0.016, 0.003)	<b>-0.048</b> (-0.080, -0.017)	0.001 (-0.020, 0.023)	<b>0.053</b> (0.027, 0.079)
South	No	Yes	<b>0.021</b> (0.006, 0.038)	<b>-0.056</b> (-0.097, -0.012)	<b>0.048</b> (0.015, 0.081)	-0.013 (-0.042, 0.015)
High Revenue	No	Yes	<b>0.012</b> (0.000, 0.025)	-0.034 (-0.065, 0.000)	-0.000 (-0.025, 0.023)	0.023 (-0.002, 0.049)
Industrial State	No	Yes	<b>0.015</b> (0.002, 0.028)	<b>0.078</b> (0.046, 0.108)	<b>-0.046</b> (-0.071, -0.022)	<b>-0.047</b> (-0.068, -0.027)
1880-1911	No	Yes	<b>0.125</b> (0.102, 0.148)	<b>-0.110</b> (-0.143, -0.077)	<b>0.032</b> (0.006, 0.060)	<b>-0.046</b> (-0.067, -0.026)
1912-1944	No	Yes	<b>0.338</b> (0.304, 0.371)	<b>-0.277</b> (-0.312, -0.240)	0.011 (-0.018, 0.042)	<b>-0.072</b> (-0.096, -0.049)

Numbers in four right-hand columns are estimated first difference probabilities generated from a multinomial logit model using CLARIFY with all variables set to their median values.

Both occupational background and partisanship have significant effects on segment membership. Politicians with a business background are overrepresented in segment 2, the Citizen Politicians who exhibit the most tenuous commitment to a public career, and are less likely to be members of the other three latent segments. The significant effects we find for occupational background support our and others' contention about the relative compatibility of legal and business careers (lawyers make up the vast majority of non-businessmen in Congress). Republicans are less likely to belong to segment 2 and more likely to belong to segment 4, the Mobile Politicians class. As we expected, Southerners are more likely to belong to segments 1 (.021) and 3 (.048), the Professionals and Office Progressives classes for whom House service is most dominant.

We find some support for our hypotheses about the size of the public sector. Politicians from high revenue states are significantly more likely to belong to segment 1, but the size of the effect (.012) is small. These same politicians appear to be less likely to belong to segment 2, the group whose service in public office is the most transitory. The size of the effect (-.034) is comparatively large, and nearly reaches conventional statistical significance. Our state-level measure of industrialism yields interesting effects on segment membership. Politicians from industrial states are both more likely to belong to segments 1 and 2, and less likely to belong to the others. However, there is not much evidence that industrial states elected politicians whose commitment to public service was more or less firm than that of others.

### *Segmentation and Career Decision-making*

To tests our hypotheses about the effects of segment membership, duration, party advantage and ballot reform on politicians' career choices, we estimated a competing risks (continue, private sector, move down, move up) hazard model. The model includes dummy variables for the four segments of the 4-LSMC model, which we interact with our four other predictors. In doing so, we are able to assess whether the response to time spent in office, the electoral environment, ballot reform and age vary across segments.<sup>14</sup> Figures 5 and 6 plot estimated first differences from the model with brackets indicating 95 percent critical intervals.

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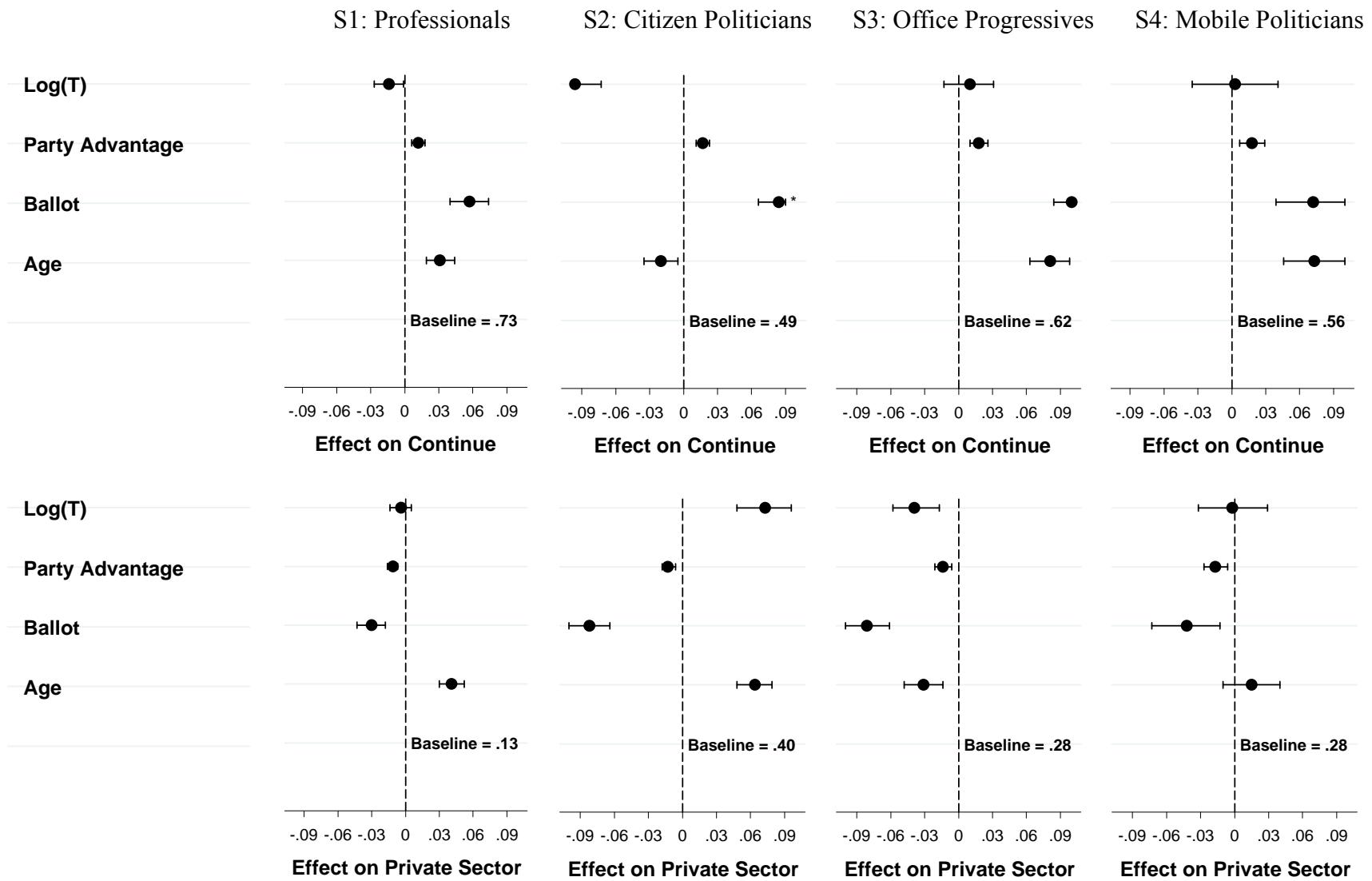
<sup>14</sup> To fully incorporate the sequential nature of career data, we also ran 3-LSMC and 4-LSMC models in Latent Gold that condition the effects of our main predictors on the state of politician at time t-1. Given the large number of parameters in these models (separate estimates of party advantage, ballot reform, etc., for all 10 states), we do not present these results here, although we

The large effects of segment membership are captured by differences in the baseline probabilities of continuing, leaving for the private sector, moving down and moving up that appear in the lower right-hand corner of each panel. For example, as the upper left panel of Figure 5 indicates, the probability of staying in an office for members of segment 1, the Professionals class, is .73. The same probability among segment 2 members, Citizen Politicians, is .49, with segment 3 and 4 members, Office Progressives and Mobile Politicians, having probabilities of .62 and .56. Differences in the probability of leaving for the private sector are similarly dramatic, with segment 1 members exhibiting a low .13 probability of leaving, segment 2 members a quite large .40 probability and members of the other segments about midway in between (.28). Politicians in all segments are far less likely to move down or move up, though for the latter outcome we do find significant differences between segments. These differences further demonstrate the existence of significant heterogeneity in political mobility.

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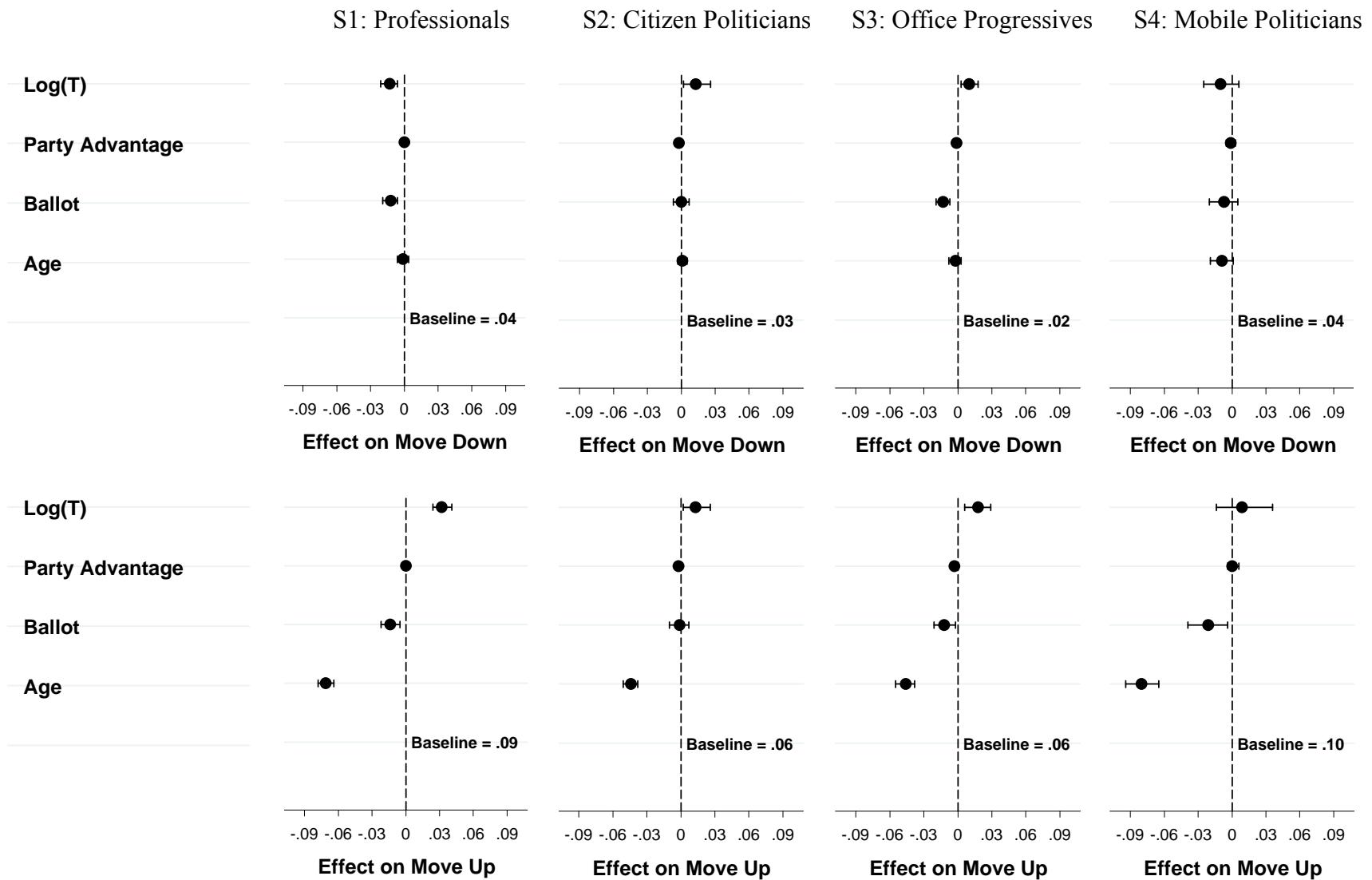
find that the effects of our predictors apply broadly across office states and that adding them to our estimates of  $\mathbf{X}_i$  improves model fit.

**Figure 6. First Difference Estimates of Politician Career Choices (Continue, Private Sector)**



\* indicates estimate upper / lower bound exceeds .09 / -.09.

**Figure 7. First Difference Estimates of Politician Career Choices (Move Down, Move Up)**



Further evidence for heterogeneity can be found in the variable effects of duration across latent segments. Looking across the top row of panels in Figure 6, we observe that duration has large negative effects on segment 2 members' propensity to continue in an office, significant negative effects on segment 1 members and no effect on members of segments 3 and 4. Looking across the second row, duration has positive effects on moves to private-sector activity among segment 2 members and negative effects on segment 3 members. Thus, these effects of duration reflect segment 2 members (Citizen Politicians) quickly transitioning out of politics from any public office while its effects are more gradually registered among segment 1 members (Professionals) exhibiting a firmer commitment to a public career. In contrast, the panels in the bottom row of Figure 7 indicate that duration has mostly positive effects on upward mobility.

The positive effects of party advantage on continuing in office provide some support for our hypothesis about the effects of a favorable electoral environment. Changing party advantage from 48.5 to 60.3 (the 25<sup>th</sup> to 75<sup>th</sup> percentiles) increases the probability of continuing by .01, a fairly small effect that varies little across latent segments. The same change has negligible effects on moving down and moving up, although these results and the small effects for continuation likely reflect our measure's tendency to smooth out large fluctuations in partisan tides. Other scholars have shown that continuation in legislative offices and moves up the political hierarchy are sensitive to short-term variations in electoral vulnerability (Kiewiet and Zeng 1993; Box-Steffensmeier and Jones 1997; Maestas et al. 2006).

Ballot reform exerts strong effects on politicians' career choices. The probability of staying in place increases by .05 among segment 1 members, and .10 and .07 for segment 3 and 4 members. Though we expected ballot reform to have its strongest effects on the most committed public servants, we also observe that reform increases the probability of continuing for segment

2 by .08. On the flip side, ballot reform substantially reduces the likelihood of leaving public office for the private sector, with the effect ranging from -.03 for segment 1 to -.08 for segments 2 and 3. We also find that politicians in segments 1, 3 and 4 are significantly less likely to move up after reform, perhaps reflecting the reduced opportunities that Figure 5 and our findings in Table 5 appear to imply.

Finally, we find that age has powerful effects on politicians' career choices, though these effects vary markedly by segment membership. The easiest effect to explain is the large reduction in upward mobility as politicians get older. Changing age from 39 to 57 (the 25<sup>th</sup> to 75<sup>th</sup> percentiles) significantly reduces the probability of moving up for all four latent segments. This supports our hypothesis about the diminishing returns of moving to another office. The same change increases the probability of continuing among segment 1, 3 and 4 politicians while reducing it among segment 2 politicians. This finding suggests the greater focus on the public career by the former relative to the latter with increasing longevity. But age also increases the likelihood of leaving politics altogether for segments 1 and 2, the Professionals and Citizen Politicians classes, with the effects significantly larger for the latter.

## Conclusion

A large body of work on the U.S. Congress relies on the career concerns of legislators to motivate theories of institutional development, legislative behavior and government performance. Nonetheless, outside of aggregate trends on turnover within particular institutional contexts such as the U.S. House and the significant effects that scholars have found for particular institutional settings, environmental factors and personal characteristics on the choices of subsets of legislators, we know relatively little about political mobility. If, as Schlesinger (1966) claims,

legislators' behavior in office is a function of their office goals and legislators' office goals develop from expectations about what career moves are desirable and possible, scholars ought to strive for a better understanding of political mobility and, where possible, better methods for empirically measuring its extent and variation.

We proposed a flexible model for studying political careers that can accommodate both heterogeneity and serial dependence – two common features of individual-level longitudinal career data. Such models are particularly useful for identifying distinct patterns of political mobility, even when the number of subpopulations and causes of heterogeneity are unknown or cannot be easily modeled in advance. Because the LSMC model we presented identifies discrete homogenous subpopulations and assigns politicians to them, it yields a classification scheme that can allow scholars to develop segment-specific theories and models of legislative behavior.

While demonstrating the consequences of segment membership for legislative behavior aside from House members' decisions to stay in office, move elsewhere or leave politics altogether is not our primary objective here, we believe pursuing this line of inquiry offers significant promise. For example, do members of segments 1 and 3, the Professionals and Office Progressives who exhibit the firmest commitment to a political career, show higher levels of participation in lawmaking, whether measured by their service on committees, frequency of floor speeches or number of bill introductions? We might expect that these legislators are more effective at lawmaking than their colleagues (Volden and Wiseman 2014). Can over-time changes in the distribution of latent segments in the House be linked to changes in legislators' behavior overall? We study these topics in future research.

We applied our LSMC model to an original dataset of career sequences for 5,852 individuals who began service in the House of Representatives between 1849 and 1944. Without

knowing in advance either the number of latent segments or the types of movements they would exhibit, we were able to identify four distinct patterns of political mobility. These four latent segments varied significantly in the extent to which public service dominates the adult life span, the importance of House membership in the career sequence and the mix of other public offices occupied. We also show that the distribution of members by latent segment,  $\pi_s$ , changes over time. Paradoxically, we find that House membership becomes more, not less diverse over time, though the increasing prevalence of House careerists is evident. A statistical anomaly at the start of our period, these politicians become a plurality of new House members in the 1920s.

These changes in the distribution of segment membership match up well with scholarly accounts of the House's institutional development. Shepsle (1988) surmises that House's ability to maintain its separateness, independence and influence is inextricably linked to its ability to nurture legislative careerism. Other scholars have ascribed responsibility for important changes in legislative organization during this period to the growing ranks of professional politicians. Katz and Sala (1996), for example, claim that "the source of the seniority system was a critical change in House membership from mostly 'amateurs' to mostly 'professionals'" (p. 26). We show that a substantial cohort of segment 1 politicians whose mobility pattern suggests a clear expectation of a long career in the House was in place as early as the 1890s. Since we can now identify those members who appear to best fit the profile of the career-focused "professional politician," further progress can be made in explaining the House's institutional development by linking the efforts of these members to observed changes in the House's internal organization.

Having identified four distinct patterns of political mobility, we explored possible sources of segment membership. We provided evidence that such personal attributes as occupation and partisanship, regional differences and the size of the public sector exert significant influence over

the assignment of politicians to latent segments. We also investigated the consequences of segment membership for politicians' career choices. We found that segment membership is responsible for large differences in the probability of continuing in office and leaving politics altogether. Equally important, segment membership appears to condition the effects of the electoral environment and states' adoption of Australian ballot reforms.

We believe further progress in understanding political mobility can be made by extending our LSMC model to other offices and other time periods. One limitation of our application of the model to House members serving from 1849 to 1944 is that our estimates of the initial distribution,  $\lambda_j$ , and transition probabilities,  $a_{jk}$ , might not be generalizable. Our population of House members likely does not constitute a random sample of politicians occupying other offices or states, such as governor and state legislator. We hope to add career sequences of other officeholders, including senators, governors, cabinet members, judges and others who did not serve in the House (see Kernell and MacKenzie 2011), and determine whether the political mobility patterns we identify are specific to particular destination offices or suggest more general features of a national structure of political opportunity.

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