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ABSTRACT

Using data from Szelenyi and Treiman's 1993 six-nation survey of Social Stratification in Eastern Europe, we replicate and extend Walder, Li, and Treiman's (2000) paper showing different paths into the Chinese urban elite for professionals and cadres. For each of six formerly communist nations (Bulgaria, the Czech Republic, Hungary, Poland, Russia, and Slovakia), we find effects quite similar to those shown by Walder, Li, and Treiman for China: education is a more important determinant of recruitment to professional positions than to cadre positions and communist party membership is a more important determinant of recruitment to cadre than to professional positions. Unlike patterns of elite recruitment in China, however, we find virtually no detectable differences in patterns of elite recruitment over time, contrary to the conventional wisdom of students of Eastern European communism.

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INTRODUCTION

The disintegration of the communist rule in Eastern Europe in 1989, which caught both policy-makers and analysts by surprise, has led researchers to propose a number of retrospective explanations of its collapse. In particular, analysts have questioned why elites did not forcefully defend a system that provided them with considerable power and substantial privilege. A number of observers have answered this question by arguing that the communist elite was internally fragmented and as a result either incapable of or unwilling to defend its political authority. According to this argument, the ruling elites in Eastern Europe were split along generational lines as a result of an earlier shift in patterns of elite recruitment from an emphasis on ideological conformity and political loyalty to an emphasis on technical competence and merit. By the late 1980s, therefore, the ruling elite was purportedly divided between "old bureaucrats" who retained the traditional ideology of Soviet Marxism and "young technocrats" whose specialized education led them to adopt pragmatic orientations that often put them at odds with their older colleagues. Some researchers have gone so far as to argue that these young technocrats were willing to dispense with communism entirely, on the grounds that it was likely to be they who would be among the winners of a transition to capitalism as a result of their human capital endowments and their incumbency in positions of power (Staniszkis 1991; Szalai 1994; Szelenyi and Szelenyi 1994; Verdery 1996). Shifts in elite recruitment thus

figure prominently in analyses of system breakdown in Eastern Europe, in the sense that an unintended consequence of the party's increasing emphasis on technical competence as opposed to ideological conformity was arguably the formation of a technocratic faction within the elite that had little interest in maintaining state socialism and a considerable interest in bringing about its collapse.

One of the most momentous events in recent history has thus been linked to shifts in patterns of recruitment into the communist elite. Despite the theoretical weight it has been forced to bear, however, the claim that elite recruitment patterns changed over time in Eastern Europe in a manner that ultimately produced a fragmented elite has not been subjected to close empirical scrutiny. One reason for this is that data on party membership in Eastern Europe and the Soviet Union were largely unavailable until the late 1980s and early 1990s, preventing an assessment of the extent to which promotion to elite positions was based on political versus educational criteria. Although a number of articles examining the role of politics in mobility processes in Eastern Europe and the Soviet Union have emerged in recent years (e.g., Massey, Hodson, and Sehulic 1992; Gerber 2000), we still lack clear answers to questions regarding the relative importance of party membership and educational attainment in recruitment to elite positions in communist Eastern Europe.

In this paper we examine recruitment into elite administrative and professional positions during the state-socialist period (1949-1988) in six Eastern European societies: Bulgaria, the Czech Republic, Hungary, Poland, Russia, and Slovakia. In particular, as a

way of adjudicating among conflicting theories discussed below, we assess the applicability of Walder, Li, and Treiman's (2000)[1] "dual career path" model, which was developed to explain elite recruitment in communist China, to Eastern Europe. According to this model, there exist two distinct career paths in state-socialist societies: a professional path, entry into which is based on possession of educational credentials, and an administrative path, selection into which rests largely on possession of the proper political credentials, in particular, membership in the communist party. In the case of Eastern Europe and Russia, we are interested in knowing, first, whether political and educational credentials were screened differently for entry into professional and administrative positions and, second, whether differences between these career paths remained relatively stable or changed over time. In particular, we investigate whether there exists any evidence of the growing importance of educational credentials in the allocation of administrative positions over time, which, if true, would provide some support for the assertion that a generational split within the party elite contributed to the system collapse.

ELITE MOBILITY IN STATE-SOCIALIST SOCIETIES

Interest in elite recruitment processes in Eastern Europe and the Soviet Union has a long history. Our goal in this section is not to provide a comprehensive review of the large literature on elite recruitment in this region but rather to outline the most important

[1] Hereafter, WLT.

perspectives. In discussing this literature, we focus on recruitment into the administrative elite, which has received much more attention than professional recruitment. We highlight three approaches: (1) the "totalitarian society" approach, which emphasized the importance of political criteria in the selection of elites; (2) the "modernization" approach, which argued that state-led industrialization in communist societies led to greater importance being placed on educational criteria in elite recruitment processes; and (3) the "new class" approach, which combined insights from both the totalitarian society and modernization approaches by arguing that recruitment into the bureaucratic elite rested largely on political criteria during the initial "reconstruction" phase of state socialism but increasingly on educational criteria during the "post-reconstruction" period that followed. We then discuss Szelenyi's (1986) "auto-critical reflections" on the influential text he had coauthored with George Konrad a decade earlier, *Intellectuals on the Road to Class Power*. Finally, we briefly outline the findings of Walder (1995) and WLT on dual career paths in China.

The Totalitarian Society Approach

Totalitarian theorists such as Brzezinski (1962) argued that what was distinctive about societies such as the Soviet Union was the cleavage between the elite and the masses, a cleavage maintained by resort on the part of elites to extreme forms of coercion. Totalitarian theory emphasized the aim of communist parties to eliminate all potential sources of opposition to their rule, a goal which involved the eradication of propertied classes, including the petty bourgeoisie and the peasantry, and the purging of

the pre-socialist intelligentsia from positions of authority. According to the theory, these measures created a highly turbulent environment during the years immediately following communist seizures of power. Facing resistance from many quarters, communist leaders established complex systems of control that pervaded the entire society, among them an elaborate system of surveillance that involved the maintenance of files on every citizen containing detailed information on class origin and political behavior. This effort to penetrate all spheres of society required, of course, large numbers of loyal, politically indoctrinated foot soldiers. According to totalitarian theorists, therefore, recruitment into the ranks of the party elite was based not on technical expertise but rather on indoctrination into "the political goal-orientation of the Party" (Brzezinski 1962: 82).

The Modernization Approach

While acknowledging that communist societies were unique in the sense that power was monopolized in the hands of the party, during the late 1950s and early 1960s a number of observers began to argue that the process of modernization was leading stratification orders in such societies to assume a shape similar to those in western capitalist societies. Researchers such as Inkeles (1960), for example, insisted that modernization theory applied to the Soviet Union in the sense that the forces of industrialization were imposing certain uniformities upon mobility processes in that country despite its unique political institutions. Regarding processes of elite recruitment, Inkeles noted that "although vital decisions remain the monopoly of party leaders, the growing importance of technical problems in the governing of the state has forced an

informal sharing of power with scientists, engineers . . . and other crucial technically skilled personnel" (1960:346). Furthermore, Inkeles predicted that the trend toward the inclusion of the technical intelligentsia in decision-making processes would become even more pronounced over time. In short, from the perspective of modernization theory, the need to establish and administer a complex industrial economy would inevitably force party leaders to promote technically trained individuals to administrative offices.

The modernization thesis has received some empirical support. Connor (1979), for example, showed that education was central in processes of status attainment in general and attainment of elite positions in particular within state-socialist societies. Whatever one's social origin, insisted Connor, higher education opened doors that led into the communist elite. Like Connor, Lane's (1982) empirical analysis indicated that, over time, education had become the primary route to upward social mobility in the Soviet Union and its Eastern European satellites. On the basis of this observation, he argued that communist societies were converging with western industrial societies with respect to patterns of inequality and mobility. As WLT point out, however, authors such as those cited here remained curiously silent "about the question of screening for political loyalty" (2000:193). As they remind us, the increasing importance of education in mobility processes in state-socialist societies does not necessarily imply that the political dimension of mobility has diminished. On the contrary, political criteria can be combined with meritocratic criteria to produce stable stratification orders in communist states (see also Walder 1985). Lacking definitive evidence that party membership had

lost its salience, one could not justifiably conclude that the growing importance of education in status attainment processes in communist societies meant that these societies were losing their distinctiveness.

New Class Theories

New class theorists saw the basic divide in state-socialist societies falling not between the elite and the masses, as totalitarian theorists did, but rather between intellectual and non-intellectual workers. Furthermore, and in keeping with this view, they argued that the distance separating the bureaucratic elite from intellectuals tended to diminish with the passing years. Thus, while rejecting the claim that stratification orders in communist societies had converged with those in the West, new class theorists nevertheless accepted the claim put forward by modernization theorists that, over time, the importance of education in elite recruitment processes increased. Giddens (1973), Parkin (1971), and Konrad and Szelenyi (1979), for example, maintained that a shift in elite recruitment patterns took place in state-socialist societies as they moved from the "reconstruction" to the "post-reconstruction" phase. During the former, party leaders placed a premium on party loyalty in the recruitment of new cadres, largely for the reasons put forward by totalitarian society theory. Having eliminated class enemies and consolidated their hold on power, however, party leaders entered the latter phase facing a new set of challenges that required them to consider technical competence as much or more than political loyalty in the screening of potential cadres. One of the reasons for this shift had been highlighted by modernization theorists: modern industrial economies

simply create a demand for technically competent administrators. The increasing importance of educational credentials in elite recruitment processes was not determined by economic factors alone, however; political factors also figured into the equation. According to Jowitt (1992), for example, having consolidated power the party found itself greatly in need of political legitimacy due to the liberal doses of coercion and terror that had been meted out during the reconstruction phase. One way of obtaining such legitimacy was to open the door to higher administrative office to members of the technical intelligentsia.

By the late 1960s and early 1970s, there was a broad consensus that a rapprochement between the bureaucratic elite and technically trained intelligentsia had been achieved in state-socialist societies. In their book, *Intellectuals on the Road to Class Power*, for example, Konrad and Szelenyi (1979) argued that no one could become a member of the elite who was not both a party member and an intellectual, while Bauman (1969, cited in Parkin 1971:152) went so far as to maintain that a "basic sociological unity" existed between white-collar experts and party functionaries. What these new class theorists were suggesting, in other words, was that, while administrative and professional tracks had been sharply distinguished during the reconstruction period, during the post-reconstruction phase these distinctions began to fade as party leaders came to screen potential cadres more carefully for educational credentials. The "rapprochement thesis" thus predicts processes of selection into administrative and

professional positions in state-socialist Eastern Europe to converge around a similar set of criteria.

It should be noted that the new class theorists who were heralding the unification of the ruling elite and the intelligentsia in state-socialist societies were well aware of the implications this had in terms of intra-elite conflict and, by extension, the stability of the system. In the 1970s, however, the tendency among researchers was to downplay the idea that new, technically trained cadres represented a source of opposition to older and entrenched bureaucrats. According to Giddens (1973), for example, higher party officials, even those who received a technical education, underwent a transformation of outlook and attitudes in the course of pursuing a successful bureaucratic career. Thus, while elites in state socialism were recruited from a broad spectrum of social backgrounds, they were closely unified by the general influence of Soviet Marxist ideology.

New Class Theory Reconsidered

In general, new class theorists put forward the rapprochement hypothesis without taking into consideration potentially important differences among state-socialist countries in regard to such details as the character of the ruling elite and the nature of the political opposition they confronted. Events in Czechoslovakia following the Warsaw Pact invasion of 1968, and more specifically the purge of thousands of intellectuals from the party and their removal from positions of authority, indicated quite clearly that the rapprochement between intellectuals and bureaucrats was suffering significant setbacks,

at least in certain countries. Szelenyi (1986:107) in fact regarded the invasion of Czechoslovakia as "the beginning of the deterioration of the relationship between Eastern European intellectuals and bureaucrats." In Szelenyi's mind, the potential exited for the unification of the bureaucratic elite and the intelligentsia but the bureaucracy was proving to be too stubborn and too suspicious of intellectuals to consider sharing power with them. This proved to be the case not only in Czechoslovakia but also Poland where bureaucrats went on the offensive in the late 1960s, embarking on an anti-Semitic and anti-intellectual pogrom that drove thousands of intellectuals out of the country. In Hungary, the 1974-78 period also saw power shift back into the hands of party conservatives, who began to dismantle many of the liberal economic reforms enacted as part of the New Economic Mechanism in 1968 (Szelenyi 1986; Rothschild 1993).

In short, Szelenyi's (1986; see also Szelenyi 2002) "auto-critique" of his earlier work with Konrad suggests that the emphasis on rapprochement needs to be balanced by recognition that rapprochement often gave way to retrenchment. Where many observers in the late 1960s and early 1970s were arguing that the bureaucratic elite and intellectuals had merged to form a single dominant class, Szelenyi's "retrenchment thesis" holds that this union was in many, if not most, cases short-lived. In terms of the analysis of dual career paths, what the "retrenchment thesis" predicts is the maintenance of sharp distinctions between the administrative and professional paths over the long run.

Dual Career Paths in China

In his analysis of cross-sectional data from a 1986 survey carried out in Tianjin, one of the largest cities in China, Walder (1995) found clear evidence that two specialized career paths existed in urban China, an administrative career path for which candidates were screened carefully for party membership but not higher education and a professional career path for which they were screened for higher education but not for party membership. Because these data were cross-sectional, however, Walder (1995) was unable to examine change over time in the effects of education and party membership on career mobility. This shortcoming was corrected in WLT's (2000) study that not only supported the claim of separate recruitment paths into administrative and professional positions in China but also showed that the effect of party membership on the odds of entering the administrative path had diminished over time while the effect of higher education on these odds had increased. Nevertheless, differences between the two career paths remained sharp; in the most recent period that WLT studied (1988-1996), party membership had a negligible effect on the odds of becoming a professional while the effects of education (high school or college) on the odds of becoming an administrator were much smaller than their effects on the odds of becoming a professional.

WLT conjectured that China might be quite distinctive from the more developed communist regimes of Eastern Europe because the shortage of trained personnel, especially in the early years of the regime, precluded the government from enforcing

political loyalty as a condition for securing professional employment–the need to make efficient use of all available trained personnel was just too great. In Eastern Europe, WLT suggested, the availability of an adequate supply of university-trained personnel might have led to a convergence in the criteria for both cadre and professional selection–the combination of political loyalty and high educational credentials–just as predicted by the new class theories discussed above.

The aim of this paper is two-fold: to adjudicate among the competing theories of elite recruitment in communist Eastern Europe discussed above,[2] and to compare the pattern of elite recruitment in Eastern Europe with that observed in China in order to evaluate the conjecture of WLT regarding differences in the two regions. The latter goal

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[2] This is made more difficult by the fact that these theories, in common with most verbally expressed theories, are not precise enough to permit unambiguous falsification. In particular, as (identifying reference omitted) pointed out, the competing theories of Eastern European elite recruitment do not distinguish effects due to changing distributions from effects due to changing relative odds. For example, a demonstration that cadres were more highly educated toward the end of the communist period than early in the regime would hardly support the modernization thesis if the same were true of non-cadres. Only if the net effect of education on the odds of becoming a cadre increased over time would we accept a claim of "increasing importance" of education. Our operationalization of "stronger effects" are all in terms of relative odds ratios, in common with WLT.

requires that we replicate WLT's sampling, measurement, and analytic specifications as closely as possible.

DATA AND METHODS

Samples

Our data are from the 1993-94 study of "Social Stratification in Eastern Europe after 1989" (Treiman and Szelenyi 1993; Treiman 1994).[3] As part of this project, national probability sample surveys of approximately 5,000 adults (age 20-69) were carried out in 1993 in each of six formerly communist Eastern European nations: Bulgaria, the Czech Republic, Hungary, Poland,[4] Russia, and Slovakia. Following WLT, we restrict our analysis to the urban population (those not currently living in "a village of

[3] The data and documentation may be downloaded from the UCLA Social Science Data Archive website: http://www.sscnet.ucla.edu/issr/da/index/framei.htm. Click on "SSEE" then click on "SSEE homepage."

[4] Due to the lack of adequate funding, the Polish survey was delayed until 1994 and was restricted to about 3,500 persons.

less than 5,000 persons")[5] and analyze the period from 1949 to 1988 using the retrospective careers of respondents.[6] We also restrict the analysis to years in which respondents were between 18-59 years old.

Variables

Sex and *age* are unproblematic. Following WLT we have not included a squared term for age. In Eastern Europe, the probability of becoming either a cadre or a professional among those at risk is low at every age. For cadres, it is less than one-half of one per cent per year for those in their mid-20s but then declines slowly and linearly throughout the career; for professionals there is a near-linear decline from a peak of about

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[5] About 63 per cent of the population of Eastern Europe is urban, ranging from 53 per cent in Slovakia to 72 per cent in Russia, in contrast to only 31 per cent of the Chinese population (all percentages are derived from the sample data).

[6] By 1949, all the Eastern European nations in our sample had acquired communist governments. Of course, the transition in Russia occurred some 30 years earlier, but we thought it best to restrict the analysis to a comparable period of time, especially since relatively few respondents began their careers prior to 1949 and the further back we go, the greater the likelihood of sample bias due to differential mortality. We chose 1988 as our ending point since in 1989 the communist governments of all but Russia collapsed; in Russia this did not occur until 1991, but the convenience of comparability in the period considered outweighed any advantage of adding two more years to the Russian data set.

one and one-half per cent for those age 18 to near zero for those in their late 30's. Thus adding squared terms hardly changes the remaining coefficients.

[Table 1 about here.]

For the analyses in which we directly replicate WLT, we did as they did and measured *communist party membership* by the year the respondent joined the party. Statistics on party membership, which are displayed in Table 1, range from 10.9 percent in Poland to 14.9 in Bulgaria. By comparison, the urban samples on which recent studies of elite mobility in China are based have party membership hovering at approximately 10 percent, roughly similar to Eastern European rates (see for example Walder 1995). However, unlike China where virtually no one leaves or is expelled from the party even if they get into serious political trouble, many people were expelled from the party in Eastern Europe in purges following periods of liberalization and many more left of their own accord in the 1980's.[7] Nonetheless, it turns out that computations equivalent to those reported in Table 3 but based on current party membership rather than on whether the respondent had ever been a party member while at risk of elite recruitment produced results virtually identical to those reported in the table, since only about five per cent of those who joined the communist party were recruited to the elite after leaving the party. Since the distinction between current and former party membership might be important in

[7] The percentage of former party members among all those who had ever been members of the party (counting as "former" those who left prior to 1989) is, for Bulgaria, 38; the Czech Republic, 25; Hungary, 51; Poland, 62; Russia, 20; and Slovakia, 19.

particular periods, especially those characterized by hardline policies, in the remainder of the analysis we study party membership at the time of risk rather than whether the respondent has ever been a member of the party.

We define *cadres* as all those who held managerial positions (codes 1000-1320 and 2010-2012 in the 1988 *Standard International Classification of Occupations* [ISCO], International Labour Office 1989); this seems to us the best match to WLT's specification of "middle-level management" and "high-level management or leader." We define *professionals* in two ways. For use as a dependent variable, we include ISCO codes 2000, 2100-2229, 2310, and 2400-2460; that is, we exclude "nursing and midwifery professionals" and all teachers except "higher education teaching professionals," on the ground–following WLT–that these are not elite positions. However, we utilize a second, more inclusive, definition to create an independent variable for the analysis of achievement of cadre positions (WLT's Table 2): ISCO codes 2000, 2100-3480, which corresponds to what are usually thought of as "professionals and technicians." Both the *cadre* specification and the more restrictive *professional* specification are used also to create two dichotomous variables for father's occupation when the respondent was age 14. When the cadre and professional variables are used as independent variables in equations predicting the other outcome, they are specified as time-varying covariates but with the condition that once a position is attained it is permanent. Thus, the appropriate interpretation of these variables is the effect of ever having held one kind of elite position while still at risk for the other, e.g., the effect that

ever having been a cadre has on the odds of becoming a professional, and the effect of ever having been a professional, semi-professional, or technical worker on the odds of becoming a cadre. Finally, for respondents we define an additional dependent variable, *elite*, which is the achievement of either cadre or professional status, whichever comes first.[8]

Some may think that we have specified the elite components too broadly, encompassing all middle and higher managers and all higher professionals (when professional is the outcome variable). However, the discussion above of the debates regarding the relative importance of education and political loyalty makes it quite clear that the subjects of these debates were the professional and managerial classes broadly defined.

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[8] It should be noted that a sizable proportion of respondents who occupied cadre and professional positions experienced downward occupational mobility at some point in their careers. In regard to those who occupied cadre positions, the percentage of respondents who experienced downward mobility ranges from a low of 37 percent in Russia to a high of 53 percent in the Slovak region of Czechoslovakia. Downward mobility from professional positions was also significant but less pronounced, ranging from a low of 18 percent in Poland to a high of 26 percent in Russia. Given the extent of downward mobility from elite positions in all of the countries included in this analysis, further investigation is certainly warranted. Space considerations, however, prevent such an analysis from being presented in this paper.

We create two dichotomous variables for *education*: matriculation at an upper secondary school, and matriculation at a tertiary-level institution. Note that a positive value on the variable indicates admission to the level, not necessarily completion.[9] In China, and arguably in Eastern Europe, admission was the crucial, politically-influenced, attainment. These variables are recodes of the CASMIN classification (Müller et al. 1990) in the data: codes 0/3 (ranging from "no schooling" to "completed primary education and basic vocational qualification") are regarded as below upper secondary schooling, codes 4/6 (ranging from "secondary, incomplete, no certificate" to "secondary, academic certificate (e.g. matura)") are regarded as upper secondary, and codes 7-9 (ranging from "higher education, incomplete, no certificate/degree" to "higher education, post-graduate study") are regarded as tertiary. The two education variables are treated as time-varying covariates, and respondents are assigned the highest level of schooling they had completed at each year for which they were "at risk" of attaining an elite position. For convenience in interpreting our results, the coefficients for tertiary education are expressed in relation to upper secondary schooling. Thus, the ratio of the odds of any

[9] In Eastern Europe, most people who began upper secondary education completed it, ranging from 82 per cent in the Czech Lands to 89 per cent in Slovakia. The completion rate was substantially lower for tertiary education, ranging from 53 per cent in Poland to 82 per cent in Hungary.

outcome for a person with no upper secondary schooling and a person with tertiary education is the product of the two coefficients reported in the tables.[10]

Finally, for some of our analysis we divide our sample into four *periods*: 1949-58, 1959-68, 1969-78, and 1979-88. Each period includes all observations that were at risk during the period. Although the simple division of our data into four 10-year periods hardly captures country-specific historical variation with precision, we think these periods provide a reasonable first approximation to important historical events in most of the countries studied here. However, we also undertake analysis in which periods are specified separately for each nation, depending on its particular history. The details are given in Figure 1, together with specific predictions regarding each period drawn from the theoretical literature discussed above. Since the text in the figure is self-explanatory, we need not comment further here except to note that in periods of political orthodoxy or "hardline" policies, we would expect the effect of communist party membership on the chance of obtaining elite positions, especially cadre positions, to increase, and the role of education to decrease.

[Figure 1 about here]

[10] We obtain the coefficient for tertiary education (and its standard error) simply by re-estimating the equation with upper secondary schooling as the reference (omitted) category.

Methods

Except where otherwise specified, all the coefficients reported here are estimates from discrete-time hazard rate models. Such models are, in fact, binomial logistic regression models estimated for person-year data files. Each person in the data set is represented by multiple observations, one for each year in which he or she had complete information available, which in practice means that most models were estimated only for persons in the labor force with years of non-labor force participation censored; this is not much of a problem in communist Eastern Europe since most adults worked continuously until retirement. As noted above, observations also were dropped for years prior to 1949 and after 1988 and for ages younger than 18 and older than 59. Observations also were dropped for each year following the one in which an individual succeeded in achieving the outcome being analyzed. Persons never attaining the outcome are represented by observations for each year from age 18 or 1949, whichever was later, until 1988 or the year they reached age 59, whichever occurred first, except for years in which they were out of the labor force or were missing data on educational attainment. All analyses are based on weighted data that correct for differential household size and various sampling deficiencies (see Treiman 1994 for details on construction of the weights); the analyses also correct the standard errors of coefficients to take account of the fact that there are multiple, non-independent, observations for each individual. In addition, of course, observations are clustered by nation and, within nations, by residential location. All

analytic computations were carried out using Stata 7.0, but the preparation of a person-year file was done using SPSS 10.0 and was converted to Stata using StatTransfer 6.0.

It can be shown that when piecewise exponential hazard rate models are estimated using spells corresponding to single time points (in this case years), they are the equivalent of discrete-time hazard rate models.[11] Since discrete-time hazard models are easier to specify and have the added advantage of not censoring observations that end with the first spell, we estimate discrete-time hazard models.

RESULTS

Recall that our principal interest is in the role of party membership and education in the attainment of elite status. WLT argued that the communist leadership in China coped with the shortage of skilled personnel by focusing its demands for political loyalty on those who would manage the regime, the cadres, recognizing that in order to secure an adequate supply of professionals they would have to be recruited on the basis of trained skill without demanding manifest loyalty as well. Moreover, given the deep suspicion Mao had of the intelligentsia, the educated population may have avoided competing for cadre positions, preferring instead to seek professional opportunities that (until the disaster of the Cultural Revolution) at least partially protected them from the twists and

[11] We are indebted to (identifying reference omitted) for this insight, which we have confirmed by comparing the results of both models.

turns of policy and political demands.[12] WLT went on to argue that the much larger pool of educated people in Eastern Europe (documented in Table 2 here) might have led these regimes to require that both cadres and professionals be simultaneously "red" and "expert"–that is, that the role of education and communist party membership in recruitment to professional and cadre positions should be much less sharply differentiated than in China. Further, although they did not suggest this explicitly, they implied that the absence in Eastern Europe of the pathological suspicion of the intelligentsia displayed by Mao would also have the effect of muting the distinction between cadre and professional recruitment; however, against this is Szelenyi's suggestion in his 1986 reconsideration of new class theory that the Eastern European bureaucracy also was deeply suspicious of intellectuals. Finally, against their conjectures regarding differences between China and Eastern Europe, WLT offered the possibility that the Chinese pattern "is a generic outcome of state socialist institutions" (2000: 205).

[Table 2 about here]

It turns out that this last appears to be the case. Table 3 shows a set of coefficients estimated from a pooled sample[13] of all six Eastern Europe nations, with the

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[12] While the present analysis cannot distinguish between the preferences of employers and of employees (a caveat offered by WLT as well (p. 206)), application of Logan's two-sided logit model (1996) might make it possible to disentangle the two. We leave this for a separate analysis.

[13] We have made no attempt to adjust the weights to take account of either

coefficients estimated for China by WLT shown for convenience. The overall pattern in the two regions is strikingly similar, and the differentiation between cadre and professional recruitment is, if anything, sharper in Eastern Europe than in China. In particular, communist party membership has a strong positive effect on attaining a cadre position, more than doubling the odds net of other factors, but has a *negative* effect on attaining a professional position, whereas in China the effect of party membership is positive for both outcomes, albeit substantially stronger for elite recruitment.[14] In both regions education was much more important for attaining a professional position than for

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variations in population size across our six nations or variations in the size of the samples analyzed here. There is no basis for assuming that these data can be taken as representative of the "population of Eastern Europe" no matter what adjustments we made. Rather, they represent six examples of Eastern European style communist regimes, chosen for convenience. Moreover, any adjustment to give each country-sample equal weight is problematic due to variations in the size of the population at risk for any given analysis. Thus, we have simply pooled the (weighted) country samples to provide a summary of the findings, following where warranted with country-specific analysis.

[14] We are, of course, aware that for some people, attainment of an elite position precedes joining the communist party. However, in this analysis we consider only the effect of prior party membership or, at the limit, joining the party the same year that one first acquires an elite (or depending on the analysis, specifically a cadre or professional) position.

attaining a cadre position. And in both regions having a professional father greatly increased the odds of entering a professional position, whereas having a cadre father only modestly increased the odds of recruitment to either a professional or a cadre position. Finally, in both regions the net odds of recruitment to both professional and cadre positions declined over time relative to the first period, which is another way of saying that it took more by way of credentials to achieve elite status after the regime was established than in the early days of regime formation, a result that would be expected giving rising levels of educational attainment. In sum, our first analysis suggests that it was not the peculiar circumstances of under-development in China, but rather features generic to communist regimes, that differentiated cadre and professional recruitment. Indeed, it may not even be features generic to communist regimes. It is quite possible that the demands of professional and managerial occupations are fundamentally different in all complex societies, with professional positions requiring a high level of formal training and managerial positions requiring, if not political loyalty to the regime, organizational loyalty and social more than intellectual skills. It would be a useful exercise to extend the present analysis to Western capitalist democracies.

[Table 3 about here]

The next step in our comparison of Eastern Europe with China is to ask, first, whether there are period differences in the process of elite recruitment in Eastern Europe. WLT made a strong case for analyzing changes over time, between the pre-Reform (or Mao) period, the early Reform period beginning in 1978, and the late Reform period

beginning in 1988. They showed that the effect of party membership on attainment of a cadre position declined over time and that the crucial educational credential for professional positions shifted from upper secondary to tertiary matriculation. There are similar arguments for expecting differences in the process of elite attainment across the 40 years of communism in Eastern Europe–see the discussion of new class theory above–and the last 40 of the 70 years of communism in Russia. We might expect a similar long-term decline in the importance of political loyalty in all countries, albeit with some country-specific differences. Most analysts of Eastern Europe believe that political orthodoxy was at its peak immediately after the establishment of communist governments, and so in all nations except Russia party membership should have had its greatest impact in the 1949-58 period. However, after the first period, the rise and fall of hard-line policies varied by country, as we have noted above. Following the logic that political loyalty is most important for elite recruitment in periods of tight political control, we would expect a decrease in the effect of communist party membership in Czechoslovakia during the 1959-68 period, an increase during the 1969-78 period, and no particular decline in the 1979-88 period since Czechoslovakia remained quite rigidly orthodox until the collapse of communism in 1989. For Hungary, we would expect little decline during 1959-68 relative to the previous period, but then a decrease in the importance of party loyalty during the last one or two periods (it is unclear how important the retrenchment of the mid-1970's was). For Poland, we would expect a modest liberalization during the 1969-78 period followed by retrenchment in the 1979-

1988 period as a result of the declaration of martial law and the subsequent suppression of the Solidarity movement. For Russia, we would expect little decline in the importance of political loyalty until the last period, which saw the ascendancy of Gorbechev and the liberalization of the Soviet Union. We have no specific hypotheses for Bulgaria beyond the expectation that the demands of political loyalty loosened after the first period.

Our expectations regarding period variations in the role of education are similar to those of WLT, especially since it turns out that, contrary to their conjecture, the importance of education was much stronger for professional than for cadre positions in Eastern Europe as well as in China. Although, as we see from Table 2, the proportions of the population both with at least secondary education and with tertiary education were substantially higher in Eastern Europe than in China, there were important cross-national differences in the pace of educational expansion. For four of the six nations studied here, the percentage with at least some tertiary education is best described, following Sorokin, as "trendless fluctuation" for cohorts born during or after WWII. For the Czech Lands there was some expansion for the last two cohorts. Only Bulgaria displays a monotonic increase in the percentage with tertiary schooling, from 13 per cent of the oldest cohort to 28 per cent of the youngest. (The same is true of upper secondary schooling; only Bulgaria shows a monotonic increase, and it is dramatic–from 28 per cent of the oldest cohort to 82 per cent of the youngest cohort). Given these trends (and fluctuations), we might expect the importance of tertiary education for elite positions to increase, and the

importance of secondary education to decline, in Bulgaria; but we have no similar expectations for the other five nations.

[Table 4 about here]

We evaluate these various claims by determining whether the effects studied in Table 3 vary either by period or by nation. Table 4 reports, in the top panel, the probability levels for the interaction of period with each of the independent variables shown in Table 3 and, in the bottom panel, corresponding probability levels for the interaction of country with each of the variables. The estimation equations for the top panel included dummy variables for each period, the other independent variables in Table 3, and interactions between the period indicators and the other variables. The estimation equations for the bottom panel included dummy variables for each country, the independent variables in Table 3 except for the period indicators, and the interactions between these variables and the country indicators.

As we can see, when we do not take account of country differences, but rather pool the data from all six nations, *there are no period differences worth further attention.*[15] This is a striking finding, but is consistent with the failure to find strong or

[15] Although two of the 21 interaction terms shown are statistically significant at the .05 level, a modified Bonferroni adjustment for multiple tests (Hamilton 1992:143) implies that we should reject the null hypothesis only if the p-value is less than .0048 (≈(.05/21)*2). In the case of correlated coefficients, such as we have here, the Bonferroni adjustment is too conservative (Bland and Altman 1995). Thus, we

consistent consequences of historical events or policy variations in other studies of stratification outcomes in Eastern Europe (Simkus and Andorka 1982; Heyns and Bialecki 1993; Mateju 1993; Szelenyi and Aschaffenburg 1993; Wong 1998), quite in contrast to China (e.g., Deng and Treiman 1997; Zhou, Tuma, and Moen 1996; Li and Walder 2001; and, of course, WLT). However, it also is possible that country variations in historical rhythms, particularly with respect to the tightening and loosening of hardline policies, could serve to dampen real period effects in specific countries. This possibility certainly is consistent with the quite robust variations in country effects even when period effects are suppressed that are implied by the p-values shown in the bottom panel of Table 4.[16]

[Table 5 about here]

The results so far suggest a specific line of attack: analyze each country separately and test for the possibility of period effects. We do this by estimating the models shown in Table 3 separately for each country, introducing country-specific period interactions with each of the other variables (see Figure 1). Table 5 shows, for each of the three outcomes, probability levels for the two theoretically central

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(somewhat arbitrarily) multiplied the value by two. We experimented with alternative specifications of periods with very similar results.

[16] Even with the same modified Bonferroni adjustment we used above, 11 of the 21 coefficients are significant.

interactions, between period and, respectively, communist party membership[17] and education. The results are very clear cut. For no country and for none of the three outcomes is there significant variation by period in the importance of communist party membership for elite recruitment. Moreover, only four of 18 coefficients for interactions between period and educational attainment are significant at the .05 level, and if a modified Bonferroni adjustment is made for multiple comparisons (see note 12), none of the coefficients reaches significance (a p-value of .0067=(.05/18)*2)).

Even if we were willing to take seriously the four coefficients with p-values < .05–period differences in the effect of education on elite recruitment in Hungary, Poland, and Russia, and on cadre recruitment in Hungary–they are not systematic enough to sustain a strong claim of historical effects on elite status attainment in Eastern Europe. Indeed, only the Hungarian coefficients are in line with conventional interpretations of the communist experience. The claim is often made that with political liberalization, the Hungarian regime began to demand educational qualifications in addition to political loyalty as a condition for recruitment to the cadre ranks (e.g. Konrad and Szelenyi 1979). Our results are quite consistent with this claim. In Hungary, in the 1949-67 period the

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[17] As noted, for this and the subsequent analysis we have modeled party membership at the time of risk rather than whether the respondent was ever a party member prior to the time of risk. While current membership should be more sensitive to period variations than whether a person has ever been a member of the party, in fact there is little difference in the results.

odds of an upper secondary matriculant gaining a cadre position were almost three times larger (precisely, 2.9) than the odds for those with less education, but the odds ratio doubled (to 5.9) in the 1968-88 period. Similarly, the odds of a tertiary matriculant gaining a cadre position were about five times larger (precisely, 5.4) than the odds for secondary matriculants in the first period; but the odds ratio increased to 22.1 in the second period. The results for recruitment to any elite position are, of course, quite similar, obviously driven by the increase in the importance of education for cadre recruitment. By contrast, while in Poland the period variations in the effect of education on *any* elite recruitment conform to our expectations,[18] there is no significant period variation with respect to *cadre* recruitment, which is the crucial test. In Russia there also is no significant period variation in the effect of education on cadre recruitment. Moreover, the effect of both upper secondary and tertiary matriculation on any elite recruitment dramatically *decreased* over the three periods, contrary to our expectation.[19] We are inclined to conclude that, with the possible exception of Hungary, processes of

[18] The odds ratios by period for upper secondary vs. less education are, respectively, 4.3, 8.6, and 2.7; and for tertiary vs. upper secondary education they are 24.0, 36.1, and 8.3.

[19] The odds ratios by period for upper secondary vs. less education are, respectively, 7.7, 2.3, and 1.3; and for tertiary vs. upper secondary education they are 123, 28.4, and 17.5.

elite recruitment did not vary substantially over the 40 years of communist rule in Eastern Europe or the last 40 years in Russia.

[Table 6 about here]

Thus, in the remainder of the paper we focus on variations across nations, treating the 1949-88 period as a whole. Table 6 shows, for each nation, the same model as Table 3. It turns out that the patterns shown in Table 3 for Eastern Europe as a whole are quite consistent across countries: education improves the odds of recruitment into both elite sectors, but much more for professional than for cadre positions. Communist party membership improves the odds of becoming a cadre (except in Poland) but not the odds of becoming a professional. And professional recruitment shows substantial intergenerational continuity in the sense that having a professional father greatly increases the chance of becoming a professional, whereas recruitment to the cadre elite is enhanced by having a cadre father only in Bulgaria and Hungary. In this sense, the cadre elite may provide greater opportunities for upward mobility since recruitment apparently depends less on cultural capital acquired at home and re-enforced in school than is true for professional recruitment. All in all, our country-specific analysis provides strong support for our original conclusion: recruitment to cadre and professional positions is as highly differentiated in Eastern Europe as in China, and perhaps more so.

Still, there are some country differences worth noting. In particular, as expected, communist party membership had a stronger effect on cadre recruitment in Czechoslovakia, the Eastern European nation with the most sustained hardline policy

than in the remainder of Eastern Europe–although the effect was still stronger in Russia. Consistent with impressionistic evidence, in Russia, in contrast to the Eastern European nations, women are more likely than men to be recruited to professional positions. But what is most striking about the coefficients in Table 6 is that although some do vary substantially from country to country, the variations–except for those we have just discussed–are quite unsystematic and permit no coherent exposition of national variations in the implementation of communism in Eastern Europe and Russia. Rather, the qualitative picture is one of quite similar processes of elite recruitment throughout the region and, indeed, in China as well.

[Table 7 about here]

To complete our analysis of elite recruitment, we next consider the effect of previous recruitment into one elite sector on the odds of entering the other sector. That is, unlike the results reported in the previous tables, where cadre and professional recruitment were treated as "competing risks," so that those who achieved a professional positions were considered to be no longer at risk for a cadre position, and vice-versa, here we take account of the fact that for a non-trivial fraction of people, a professional position is followed by a cadre position, or vice-versa. Table 7 replicates WLT's Table 2, which studies the odds of becoming a cadre, except that we consider country variations but not period variations. Although the model is a bit different, the results are very similar to those shown in Table 6, and hence need little comment. The main point of the table, however, is to consider the effect of previous professional or technical experience

on the odds of becoming a cadre (recall that for this analysis we expanded our definition of professional occupations to include technical and what are sometimes called semi-professional positions). Consistent with the reasoning of WLT, it turns out that, in Hungary and Russia and arguably in Slovakia, previous experience in professional and technical occupations increases the odds of subsequently becoming a cadre for those with only a high school education, relative to non-professional/technical workers, but for tertiary-educated professionals in all countries (except perhaps Poland) the odds of becoming a cadre are less than for the remainder of the population. For example, in Hungary, the net odds of a college educated professional subsequently becoming a cadre is less than half the odds for those without previous professional experience (precisely, .442=1.84*.24). While the increase in the odds for professionals and technicians lacking tertiary schooling is hardly robust, reliably occurring in at best three of the six nations, and not at all in China, the tendency of well-educated professionals to avoid (or be rejected for) cadre positions is very strong in Eastern Europe, qualitatively similar to but stronger than the corresponding findings for China.

[Table 8 about here]

Finally, we consider another conjecture of WLT, that there is little switching from cadre to professional positions, and again find modest support for the claim (see Table 8). For three of the six countries the odds of a cadre subsequently becoming a professional are reliably smaller than are the odds for non-cadres. Although there is a suggestion that, except for Hungary, the odds improve for cadres who are communist party members

(presumably because they are more likely to be sponsored to return to school–see Li and Walder 2001), none of the coefficients is significant at any plausible level. In sum, the results shown in Tables 7 and 8 reinforce the claim that achieving professional vs. cadre positions operate according to different logics, with different determinants and (we would suggest, but cannot elaborate here) different consequences.

CONCLUSIONS AND DISCUSSION

Given a broad consensus within academic circles that elite recruitment patterns in Eastern Europe had shifted away from an emphasis on political loyalty and toward an emphasis on technical competence, we were surprised to find no confirming evidence of change over time in the effects of party membership and (except for Hungary) education on entry into the administrative career path in this region. We believe, however, that this finding can be explained in a number of ways. We start with WLT's observation that change over time in the effects of political and educational credentials on the odds of entering the administrative path in China may reflect particular conditions in that country, namely the shortage of personnel with higher education, rather than generic features of state-socialist societies. WLT consider the possibility that the Chinese regime initially failed to enforce educational standards in the administrative path not because they put an emphasis on ideological rectitude and had placed college-educated professionals under suspicion but rather because they faced a severe shortage of highly educated candidates and hence could not afford to remove from consideration candidates

who lacked educational credentials. From this perspective, higher education standards could only be imposed on cadre recruits when the supply of college graduates increased. In the case of China, however, the supply of college graduates remained low due to the chaos brought about by the 1966-77 Cultural Revolution, the closure of most universities from 1966-72, and the paucity of substantive, as opposed to ideological, instruction until after the death of Mao in 1976. This may explain why the effect of college education on the odds of entering the administrative career path in China is relatively small in comparison with Eastern Europe.

Recognizing the possibility that shortages in the supply of college graduates may greatly impact elite mobility processes, WLT expected markedly different patterns of elite recruitment in those state socialist regimes that did not experience such extreme shortages. In Eastern Europe, which had a more highly developed educational system than did China, particularly prior to the communist seizure of power, WLT suggest that the party was able to select for top administrative positions from a large pool of party members with higher degrees. As a result, they predicted that career paths into administrative and professional positions would largely require the same kinds of credentials. This in turn would imply relatively little change in the effects of education on entry into the administrative path over time, because party leaders would have no reason to wait to impose educational standards on potential cadres since a sufficiently large pool of educated party members was in place from the outset.

In fact, the results presented in this paper support do not support the claim that the existence of dual career paths in state-socialist societies derives in large part from a shortage of educated personnel. On the contrary, the findings support the alternative hypothesis that dual career paths are a generic feature of state-socialist societies. As noted above, the overall pattern of recruitment into both the administrative and professional path is strikingly similar in Eastern Europe and China, and the differentiation between cadre and professional recruitment appears to be sharper in Eastern Europe than in China. The absence of change in the effects of education on the odds of entering the administrative path in Eastern Europe is therefore not due to the fact that party leaders were already recruiting educated cadres in the years immediately following the seizure of power. On the contrary, although the advantage of education for elite recruitment was somewhat stronger in China than in Eastern Europe, in neither region did lack of a college degree preclude one from advancing along the administrative track.

If the two career paths were clearly differentiated from the start in state-socialist societies, the question then becomes why is there little evidence of change in recruitment processes along the lines WLT uncovered in China? After all, modernization and new class theorists have been insisting for years that a pronounced shift in elite recruitment patterns occurred in the Soviet Union and Eastern Europe. According to the findings presented here, the modernization and new class theorists have it wrong and the later Szelenyi, the one who wrote the "auto-critique" of his earlier new class views, has it

right.[20] While communist regimes in Eastern Europe may have flirted with the idea of sharing power with intellectuals, the affairs appear in all cases to have been short ones, so short as not to register in our data. Further research of a country-specific nature may help determine whether rapprochement was ever a reality in Eastern Europe and, if so, whether retrenchment reversed any nascent trends in the direction of meritocratic recruitment of administrative elites, although the data requirements are quite daunting.[21] Certainly, the country-specific analyses we have been able to conduct here provide little support for such claims. Thus, we are left with the possibility posed by WLT, that separate paths to cadre and professional recruitment "is a generic outcome of state

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[20] Ironically, given that Szelenyi's research has focused primarily on Hungary throughout his career and his book with Konrad primarily reflected the Hungarian experience, Hungary is the only candidate for a plausible exception to our claim, albeit only a partial exception. Although the effect of education on the odds of cadre recruitment increased over time, the effect of political loyalty did not decline. Moreover, in Hungary, just as in the other five nations, cadre and professional recruitment were sharply differentiated throughout the entire period under study.

[21] In particular, much larger samples than those used here–which are themselves quite large, on the order of 5,000 persons per nation–will be needed to permit fine-grained distinctions among historical periods without encountering insurmountable estimation problems. To our knowledge, such samples exist only for Hungary (Hungarian Central Statistical Office 1993).

socialist institutions." This poses a clear challenge for students of state socialism–to specify in detail the social mechanisms that give rise to such a "generic outcome."

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Fig. 1. Periods Specified for Each Country

Bulgaria

1) 1949-53: Stalinist period. 1954-65: Zhivkov becomes General Secretary, implements modest de-Stalinization program from outset. Old Stalinists, eliminated from security and military apparatus by 1965. We initially separated 1949-53 from 1954-65 but encountered estimation problems.
2) 1966-80: Political moderation but little economic reform.
3) 1981-88: Implementation of cautious version of Hungarian New Economic Mechanism, permitting small-scale entrepreneurship, decentralizing decision making, and inviting foreign investment.

Predictions. Effect of CP membership: monotonic decrease by period; effect of education: monotonic increase by period.

Czechoslovakia (same predictions for the Czech region and Slovakia, but stronger differences for Czech region).

1) 1949-68: Stalinist period, many purges of intelligentsia, other politically suspect persons, especially in the 1949-58 period. Thaw leading up to the 1968 "Prague Spring," which ended with the Warsaw Pact invasion in August 1968. It might be argued that the Prague Spring, which lasted only a few months, was too brief to leave any trace. Nonetheless, we experimented with different period specifications, distinguishing 1959-68 and 1959-65 plus 1965-68, to see if we could detect any variation in elite recruitment processes, but encountered substantial estimation problems.
2) 1969-88: A new round of purges of intelligentsia, hardline rule until the regime collapse in 1989.

Predictions. Little variation between periods and but, if anything, larger effects of party membership and smaller effects of education in the second period than in the first.

Hungary

1) 1949-61: Stalinist period. 1956 Soviet invasion. Fierce repression of dissidents, collectivization of agriculture. A moderate thaw in the 1962-67 period, with the end of "domestic class struggle" and large-scale release of political prisoners from jail.
2) 1968-88: Implementation in 1968 of New Economic Mechanism permitting small-scale entrepreneurship, decentralizing decision making, and inviting foreign investment. Partial reversal of economic reforms in 1974-78. Revival of economic reforms in 1979, increased economic liberalization.

Predictions. Effect of CP membership: monotonic decrease by period; effect of education: monotonic increase by period.

Figure 1 (cont.).

Poland

1) 1949-69: Gomulka named General Secretary in 1956. Refused to collectivize agriculture, but otherwise a hardline Stalinist; retained hardliners, purged reformers, revisionists, and intellegentsia from party. 1968: anti-Zionist campaign, led to massive emigration of Jewish (and non-Jewish) intellectuals; repression of student protests.
2) 1970-80: Gomulka replaced by Gierek, a technocrat who attempted "dialogue with the people," but failed. Repeated price hikes resulted in violent demonstrations and organized resistance to the regime.
3) 1981-88: Gierek replaced by Jaruzelski; Military Council ruled nation, with army officers replacing party secretaries in factories and government offices. Solidarity Movement suppressed.

Predictions. Effect of CP membership: decrease from first to second period followed by increase during third; effect of education: increase from first to second period followed by decrease during third.

Russia

1) 1949-62: Kruschchev was forced out of office in 1962, but it not entirely clear what effect this had on processes of elite recruitment. Still, we allow for the possibility of a change.
2) 1963-84: The Breznev era was a period of economic stagnation and decline in the level of living, but with no institutional changes worth noting.
2) 1985-88: Gorbachev took office in 1985, which was the beginning of instability in the Soviet Union, leading to its collapse in 1991.

Predictions. Effect of CP membership: decrease from second to third period; effect of education: monotonic increase.

(Communist Elite Recruitment, page 15)

Table 1. Per Cent Ever Members of the Communist Party by Country.

Bulgaria	Czech Region	Hungary	Poland	Russia	Slovakia
14.9	**14.8**	**11.1**	**10.9**	**12.2**	**14.7**

Table 2. Per Cent with Upper Secondary Education and Per Cent with Tertiary Education, by Birth Cohort, Urban Populations of Six Eastern European Nations and China.

	≤1929	1929-38	1939-48	1949-58	1959-68	≥1969	Total
Upper secondary schooling or more							
Bulgaria	28.1	37.8	56.8	70.8	78.6	82.0	60.8
Czech Rep.	39.4	43.9	46.6	44.8	56.9	58.3	47.9
Hungary	20.6	27.2	42.9	53.9	47.6	48.6	42.5
Poland	27.8	44.2	54.9	60.1	63.5	57.6	55.8
Russia	28.0	42.6	55.6	63.4	71.2	69.6	58.6
Slovakia	30.0	40.7	48.3	56.2	64.2	58.6	53.2
China	12.6	20.5	29.2	29.9	46.8	50.7	35.7
Tertiary education							
Bulgaria	12.7	15.1	20.8	24.6	25.6	27.6	21.5
Czech Rep.	13.1	15.2	15.4	14.6	22.6	21.8	16.8
Hungary	10.1	9.3	15.9	17.9	17.5	14.0	14.9
Poland	12.8	16.7	25.1	23.4	24.9	20.9	22.2
Russia	7.2	14.2	20.6	17.7	25.2	16.3	18.3
Slovakia	16.2	17.6	19.6	23.3	26.4	17.5	21.6
China	5.3	9.3	8.8	6.9	11.6	15.4	10.2
Frequencies (percentage bases)							
Bulgaria	246	603	685	721	685	241	3,181
Czech Rep.	368	584	850	863	651	325	3,642
Hungary	240	489	615	684	545	309	2,882
Poland	97	333	364	629	482	225	2,131
Russia	219	605	612	864	713	450	3,462
Slovakia	98	278	362	565	438	181	1,921
China	63	511	482	723	734	567	3,079

Table 3. Coefficients for Discrete-time Hazard Rate Models for Attainment of Elite Positions in Urban Eastern Europe (1949-88) and China (1949-96).

	Urban Eastern Europe						Urban China[a]					
	Any elite position		Cadre elite		Prof. elite		Any elite position		Cadre elite		Prof. elite	
	e^b	p	e^b	p	e^b	p	e^b	p	e^b	p	e^b	p
Period: 1959-68[b]	.68	(.000)	.59	(.000)	.74	(.003)	-	-	-	-	-	-
1969-78 (China: 1978-87)	.76	(.000)	.69	(.002)	.80	(.027)	.97	(.421)	1.09	(.309)	.80	(.212)
1979-88 (China: 1988-96)	.65	(.000)	.60	(.000)	.67	(.000)	.72	(.016)	.81	(.129)	.57	(.028)
Male	1.42	(.000)	1.80	(.000)	1.24	(.001)	2.17	(.000)	3.01	(.000)	1.15	(.261)
Age	.91	(.000)	.96	(.000)	.86	(.000)	1.01	(.142)	1.01	(.200)	1.00	(.401)
Father was cadre	1.60	(.000)	1.88	(.000)	1.41	(.001)	1.31	(.109)	1.15	(.295)	1.49	(.109)
Father was professional	2.64	(.000)	1.11	(.592)	3.24	(.000)	2.02	(.005)	1.31	(.233)	2.68	(.007)
Party member	1.32	(.000)	2.33	(.000)	.77	(.018)	3.80	(.000)	5.27	(.000)	1.63	(.030)
High school education	5.24	(.000)	3.59	(.000)	9.25	(.000)	3.14	(.000)	2.38	(.000)	8.96	(.000)
College education[c]	6.67	(.000)	2.41	(.000)	11.75	(.000)	2.72	(.000)	1.44	(.089)	6.13	(.000)
Number of "successes"[d]	2,730		936		1,794		368		249		119	
No. of persons at risk	14,239						2,888					

[a] The coefficients for China are taken from Walder, Li, and Treiman (2000), except that z-scores are converted to p-values (using one-tailed tests). The Chinese analysis utilized a piecewise exponential hazard-rate model. However, when the length of intervals is single years, as in the Chinese analysis, the results are identical to those obtained from a discrete-time hazard-rate model.

[b] The reference category for Eastern Europe is 1949-58. For China it is 1949-78 (the Mao period).

[c] The reference category for "college education" is "high school education." Thus, in the left hand column, the net odds that a person with a college education will attain an elite position is 35 times as large as for a person with less than a high school education (precisely, 34.95=5.24*6.67).

[d] The number of successes and number of persons at risk are unweighted figures and thus represent the actual number of observations and positive outcomes. However, the models are all estimated using weighted data.

Table 4. Significance Levels[a] for Tests of Period and Country Differences in Determinants of Attaining Elite Positions in Eastern Europe.

	Any elite position	Cadre elite	Professional elite
Period effects			
Period (no interactions in model)	.000	.000	.001
Period (model with interactions)	.750	.469	.060
Interaction between period and...			
Male	.029	.243	.019
Age	.802	.778	.741
Father was cadre	.152	.759	.172
Father was professional	.667	.899	.560
Party member	.920	.412	.903
Education	.405	.791	.064
All other independent variables	.323	.946	.051
Country effects			
Country (no interactions in model)	.000	.000	.000
Country (model with interactions)	.000	.729	.000
Interaction between country and...			
Male	.000	.001	.000
Age	.001	.427	.095
Father was cadre	.223	.197	.055
Father was professional	.025	.717	.009
Party member	.346	.001	.622
Education	.000	.243	.000
All other independent variables	.000	.001	.000

[a] These are χ^2 tests, which take account of weighting and clustering by respondent.

Table 5. Significance Levels for Tests of Country-Specific Period Differences[a] in Determinants of Attaining Elite Positions in Eastern Europe.

	Bulgaria	Czech Region	Hungary	Poland	Russia	Slovakia
Any elite position						
Period (no interactions in model)	.262	.469	.305	.077	.274	.610
Period (model with interactions)	.305	.130	.740	.016	.702	.989
Interaction between period and...						
Party member	.972	.562	.691	.326	.431	.399
Education	.577	.328	.048	.012	.080	.680
Cadre position						
Period (no interactions in model)	.701	.767	.032	.255	.541	.076
Period (model with interactions)	.209	.184	.599	.171	.462	.160
Interaction between period and...						
Party member	.818	.302	.802	.054	.964	.647
Education	.707	.673	.045	.156	.064	.666
Professional position[b]						
Period (no interactions in model)	.282	.428	.745	.032	.297	.589
Period (model with interactions)	.070	.731	.569	.250	.800	.281
Interaction between period and...						
Party member	.917	.400	.247	.746	.436	.568
Tertiary education	.653	.548	.128	.314	.117	.098

[a] The periods are those specified in Figure 2.

[b] For Poland the full model (see text) cannot be estimated for professional outcomes since for some covariate patterns "failure" is perfectly predicted. To repair this problem, for Poland we changed the education variable to a dichotomy, tertiary education vs. less than tertiary education.

Table 6. Coefficients for Discrete-time Hazard Rate Models for Attainment of Elite Positions in Urban Eastern Europe (1949-88), by Country (net odds ratios and, in parentheses, p-values).

	Bulgaria		Czech Region		Hungary		Poland		Russia		Slovakia	
Any elite position												
Male	1.45	(.002)	1.82	(.000)	1.72	(.000)	2.05	(.000)	.90	(.309)	1.66	(.000)
Age	.90	(.000)	.91	(.000)	.91	(.000)	.93	(.000)	.89	(.000)	.89	(.000)
Father was cadre	2.33	(.001)	1.58	(.036)	1.54	(.058)	1.11	(.610)	1.70	(.001)	1.18	(.471)
Father was prof.	4.69	(.000)	2.16	(.001)	2.52	(.000)	2.86	(.002)	1.62	(.015)	3.32	(.000)
Party member	1.18	(.337)	1.72	(.002)	1.45	(.047)	.94	(.774)	1.42	(.044)	1.33	(.128)
High school educ.	3.85	(.000)	8.41	(.000)	6.26	(.000)	4.69	(.000)	2.97	(.000)	5.83	(.000)
College educ.	7.90	(.000)	4.59	(.000)	7.63	(.000)	4.04	(.000)	12.5	(.000)	5.45	(.000)
No. of "successes"	406		400		353		345		910		316	
Cadre elite												
Male	1.93	(.000)	1.48	(.029)	1.89	(.000)	3.19	(.000)	1.50	(.076)	1.31	(.215)
Age	.93	(.000)	.96	(.000)	.96	(.000)	.96	(.000)	.95	(.000)	.96	(.002)
Father was cadre	2.25	(.019)	1.29	(.397)	2.98	(.000)	1.38	(.186)	2.01	(.055)	1.35	(.394)
Father was prof.	1.42	(.460)	1.50	(.262)	.98	(.965)	1.12	(.838)	.52	(.190)	1.30	(.631)
Party member	2.14	(.000)	3.10	(.000)	2.14	(.001)	1.06	(.810)	4.13	(.000)	2.95	(.000)
High school educ.	2.72	(.000)	4.69	(.000)	3.84	(.000)	3.85	(.000)	3.19	(.005)	4.09	(.000)
College educ.	2.55	(.000)	2.24	(.000)	3.37	(.000)	1.95	(.000)	2.90	(.000)	1.37	(.220)
No. of "successes"	163		185		151		186		152		99	
Professional elite												
Male	1.22	(.233)	2.40	(.000)	1.61	(.006)	1.24	(.264)	.77	(.016)	1.90	(.000)
Age	.86	(.000)	.84	(.000)	.85	(.000)	.89	(.000)	.87	(.000)	.83	(.000)
Father was cadre	2.38	(.004)	1.88	(.028)	.79	(.461)	.82	(.539)	1.57	(.008)	1.17	(.590)
Father was prof.	6.54	(.000)	2.40	(.004)	3.06	(.000)	4.05	(.000)	1.87	(.002)	4.01	(.000)
Party member	.68	(.121)	.72	(.295)	.93	(.804)	.80	(.528)	.79	(.241)	.71	(.203)
High school educ.	13.0	(.000)	89.5	(.000)	15.5	(.000)	9.67	(.000)	2.86	(.000)	8.62	(.000)
College educ.	16.4	(.000)	9.06	(.000)	13.7	(.000)	8.42	(.000)	17.7	(.000)	10.8	(.000)
No. of "successes"	243		215		202		159		758		217	
No. persons at risk	2,594		2,601		2,571		1,839		2,935		1,699	

(Communist Elite Recruitment, page 32)

Table 7. Coefficients for Discrete-time Hazard Rate Models of Attainment of Cadre Positions in Urban Eastern Europe (1949-88), by Country (net odds ratios and, in parentheses, p-values).

	Model 1						Model 2					
	Bulgaria	Czech Region	Hungary	Poland	Russia	Slovakia	Bulgaria	Czech Region	Hungary	Poland	Russia	Slovakia
Male	2.05 (.000)	1.63 (.003)	1.87 (.000)	3.09 (.000)	1.76 (.001)	1.61 (.018)	1.87 (.000)	1.59 (.007)	1.88 (.000)	2.87 (.000)	1.95 (.001)	1.59 (.032)
Age	.93 (.000)	.96 (.000)	.96 (.000)	.96 (.000)	.96 (.000)	.97 (.001)	.94 (.000)	.96 (.000)	.96 (.000)	.96 (.000)	.96 (.000)	.97 (.002)
Father was cadre	2.35 (.003)	1.18 (.550)	2.62 (.000)	1.37 (.146)	1.88 (.008)	1.55 (.119)	2.64 (.001)	1.15 (.622)	2.44 (.000)	1.43 (.105)	1.86 (.009)	1.60 (.089)
Father was professional	1.77 (.069)	1.17 (.640)	1.32 (.310)	.89 (.766)	.46 (.026)	.99 (.978)	1.97 (.035)	1.23 (.554)	1.32 (.307)	1.00 (.993)	.44 (.021)	1.01 (.979)
Party member	2.36 (.000)	2.90 (.000)	1.93 (.001)	1.01 (.967)	3.29 (.000)	2.68 (.000)	2.22 (.000)	2.94 (.000)	1.89 (.002)	.98 (.922)	3.15 (.000)	2.68 (.000)
High school education	2.78 (.000)	4.90 (.000)	4.12 (.000)	3.80 (.000)	3.65 (.001)	4.05 (.000)	2.74 (.000)	4.76 (.000)	3.22 (.000)	4.04 (.000)	3.25 (.003)	3.17 (.000)
College education	2.33 (.000)	1.89 (.001)	2.89 (.000)	2.19 (.000)	3.01 (.000)	1.35 (.143)	3.80 (.000)	3.85 (.000)	7.39 (.000)	3.12 (.000)	5.66 (.000)	3.96 (.000)
Professional occupation[a]	-	-	-	-	-	-	1.08 (.743)	1.05 (.822)	1.84 (.011)	.77 (.255)	1.82 (.021)	1.67 (.055)
Prof. x college education	-	-	-	-	-	-	.43 (.020)	.41 (.026)	.24 (.000)	.67 (.243)	.34 (.004)	.22 (.001)
No. of "successes"	187	217	189	220	265	125	187	217	189	220	265	125
No. persons at risk	2,594	2,601	2,571	1,839	2,935	1,699	2,594	2,601	2,571	1,839	2,935	1,699

[a] Following WLT, we here expand the definition of professional occupations to include semi-professionals and technical workers (ISCO88 codes 2000 and 2100-3480).

Table 8. Coefficients for Discrete-time Hazard Rate Models of Attainment of Professional Positions in Urban Eastern Europe (1949-88), by Country (net odds ratios and, in parentheses, p-values).

	Model 1						Model 2					
	Bulgaria	Czech Region	Hungary	Poland	Russia	Slovakia	Bulgaria	Czech region	Hungary	Poland	Russia	Slovakia
Male	1.15 (.399)	2.39 (.000)	1.60 (.004)	1.14 (.465)	.77 (.013)	1.89 (.000)	1.16 (.350)	2.48 (.000)	1.62 (.004)	1.24 (.246)	.77 (.016)	1.94 (.000)
Age	.86 (.000)	.85 (.000)	.87 (.000)	.90 (.000)	.87 (.000)	.82 (.000)	.86 (.000)	.86 (.000)	.87 (.000)	.90 (.000)	.87 (.000)	.83 (.000)
Father was cadre	2.40 (.002)	2.04 (.005)	.67 (.199)	.77 (.396)	1.53 (.009)	1.20 (.537)	2.39 (.003)	2.07 (.004)	.68 (.264)	.80 (.477)	1.53 (.009)	1.16 (.610)
Father was professional	6.42 (.000)	2.38 (.003)	3.04 (.000)	3.65 (.000)	1.86 (.002)	4.11 (.000)	6.59 (.000)	2.37 (.004)	3.02 (.000)	3.74 (.000)	1.86 (.002)	4.18 (.000)
Party member	.79 (.299)	.78 (.377)	.65 (.164)	.81 (.498)	.81 (.244)	.68 (.143)	.70 (.138)	.72 (.289)	.89 (.676)	.75 (.425)	.79 (.246)	.71 (.219)
High school education	13.08 (.000)	90.70 (.000)	16.95 (.000)	9.73 (.000)	2.92 (.000)	8.52 (.000)	13.17 (.000)	94.05 (.000)	16.97 (.000)	10.17 (.000)	2.93 (.000)	8.68 (.000)
College education	16.21 (.000)	7.72 (.000)	11.75 (.000)	7.73 (.000)	16.80 (.000)	10.65 (.000)	16.34 (.000)	8.09 (.000)	11.89 (.000)	7.98 (.000)	17.00 (.000)	10.83 (.000)
Cadre occupation	-	-	-	-	-	-	.57 (.190)	.26 (.005)	.98 (.970)	.40 (.018)	.62 (.092)	.19 (.006)
Cadre x communist party membership	-	-	-	-	-	-	3.30 (.069)	3.30 (.115)	-[a]	1.93 (.432)	1.60 (.684)	1.51 (.733)
No. of "successes"	256	225	215	171	785	220	256	225	215	171	785	220
No. persons at risk	2,594	2,601	2,571	1,839	2,935	1,699	2,594	2,601	2,571	1,839	2,935	1,699

[a] Of 51 cadres who were also members of the communist party when "at risk," none became a professional. If we had included all those who had ever been members of the communist party, we would have identified one positive case, a man who left the party in 1957 and became a professional in 1968. But the pattern of coefficients is virtually identical regardless of which specification of communist party involvement is used, as indicated by a correlation of .9999 between the two sets of coefficients.