ETHNIC STRATIFICATION IN NORTHWEST CHINA: OCCUPATIONAL DIFFERENCES BETWEEN HAN CHINESE AND NATIONAL MINORITIES IN XINJIANG, 1982–1990*

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The debate on market reforms and social stratification in China has paid very little attention to China's ethnic minorities. We explored rising occupational stratification by ethnicity in the Xinjiang Uygur Autonomous Region. Analyses of census data from 1982 and 1990 pointed to educational disadvantages faced by ethnic minorities as the most plausible explanation for the change. Multivariate analysis revealed a significant increase in the effect of education on high-status occupational attainment but no change in the effect of ethnicity. Net of education, ethnic differences in high-status occupational attainment were negligible. In contrast, large ethnic differences in manufacturing and agricultural occupations persisted after education and geography were statistically controlled.

Dramatic economic and social changes in China since the late 1970s have garnered much attention from social scientists interested in assessing the impact of these changes on various aspects of social stratification (for reviews of the literature on market transition, see Nee and Matthews 1996 and Xie and Hannum 1996). A notable omission in the literature has been the inattention to ethnic stratification. Officially designated "National Minorities" numbered 91.3 million and constituted 8.1% of the total Chinese population in 1990 (State Council Population Census Office (SCPCO) and State Statistical Bureau 1993:300). Minorities in China have historically faced obstacles to status attainment, including geographic remoteness, poverty, and cultural and language barriers. With certain exceptions, Minority Nationalities trail the ethnic Chinese (Han) population by a variety of socioeconomic indicators (Zhang 1993; Zhang and Ji 1993). The implications of economic reforms for ethnic stratification are mixed. Growing regional and urban-rural disparities have placed minorities at a disadvantage, as these groups are concentrated in remote rural regions of China.[1] From an opposing perspective, economic growth across China and reform-era policies designed to promote development in minority regions suggest the possibility of improved status-attainment opportunities for minorities (Dilger 1984; Postiglione 1992a, 1992b).

The study of ethnic stratification in China is a complicated endeavor given the diversity of China's National Minorities in language, culture, and geographical location (see National Minority Affairs Commission 1981:1–6). In this paper, we focus on one of China's five province-level "Minority Autonomous Regions," the Xinjiang Uygur Autonomous Region, and compare occupational attainment between the Han and minority populations. Most of China's Turkic Muslim minorities, including Uygurs and Kazaks, and a sizable number of Hui (also known as Chinese Muslims) reside in Xinjiang. Meaningful comparisons of the Han (ethnic Chinese) and minority populations can reasonably be made in Xinjiang because the majority of the non-Han residents belong to culturally related groups. Empirical results pertaining to ethnic stratification in Xinjiang also carry direct implications for the nation as a whole, as Xinjiang is home to 10% of China's ethnic minorities. This paper constitutes an exploratory analysis of ethnic stratification in Xinjiang. We seek to provide a benchmark accounting of occupational attainment differences by ethnicity with particular attention to changes in the reform era.

THE XINJIANG UYGUR AUTONOMOUS REGION

Located on the Northwest border of China, Xinjiang encompasses one sixth of China's territory. Dramatic shifts in ethnic composition have taken place in Xinjiang in the latter half of the twentieth century, due in large part to central government policies of sinification. From the 1950s to the 1970s, China's leaders emphasized centrally planned and balanced economic growth for all regions of China and accordingly funneled capital and technical expertise in the form of rusticated youth to China's interior. As a result, large waves of educated Han youths were periodically relocated to Xinjiang. Table 1 shows immigration, emigration, and the region's changing ethnic composition between 1949 and 1990: The Han presence in the region jumped from under 7% of the total population in 1949 to over 41% in 1978.

In the reform era dating from the late 1970s, youth rustication policies were terminated, and regulations against re-

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1. For example, in 1990, 54% of China's minority population but only 7% of the Han population lived in the four interior provinces of Guangxi, Yunnan, Guizhou, and Xinjiang (SCPCO and State Statistical Bureau 1993:300).

TABLE 1. MIGRATION AND ETHNIC COMPOSITION: XINJIANG, 1949–1990

	Population		Migration	
Year	Total	Percentage Han	Immigration	Emigration
1949	4,333,400	6.72	—	—
1952	4,651,700	7.01	—	—
1953	—	—	—	—
1954	—	—	502,000	334,000
1955	—	—	370,200	307,000
1956	—	—	293,000	234,500
1957	5,580,100	14.72	298,500	190,200
1958	—	—	557,000	396,600
1959	—	—	820,500	309,300
1960	—	—	800,800	512,900
1961	—	—	636,400	480,700
1962	6,989,700	29.72	333,900	528,500
1963	—	—	319,500	289,400
1964	—	—	457,100	307,500
1965	7,891,000	34.96	558,600	358,700
1966	—	—	679,200	380,400
1967	—	—	375,800	258,000
1968	—	—	255,200	189,800
1969	—	—	308,900	222,200
1970	9,765,800	39.54	390,300	339,900
1971	—	—	350,500	275,000
1972	—	—	405,900	285,100
1973	—	—	302,400	254,400
1974	—	—	306,300	244,300
1975	11,545,300	41.40	594,000	566,700
1976	—	—	369,600	316,900
1977	—	—	338,400	280,000
1978	12,330,100	41.60	325,600	289,200
1979	—	—	336,600	313,900
1980	12,832,400	41.38	380,700	354,100
1981	—	—	332,600	376,500
1982	—	—	296,100	302,600
1983	—	—	259,000	268,700
1984	—	—	278,300	283,300
1985	13,611,400	39.30	308,300	334,100
1986	13,836,400	38.93	—	—
1987	14,063,300	38.61	—	—
1988	14,264,200	38.35	—	—
1989	14,541,600	38.04	—	—
1990	14,987,200	37.68	—	—

Sources: XUARSB (1991:60); Zhou (1990:78).

turn migration relaxed. In 1990, Xinjiang's total population of 14,987,200 consisted primarily of the Uygur nationality, at 47.3% of the population, and the ethnic Chinese, at 37.7% (Xinjiang Uygur Autonomous Region Statistical Bureau (XUARSB) 1991:59–60). Han settlement in Xinjiang has been concentrated around the capital city of Urumqi and in other more developed areas; by contrast, Xinjiang's minorities are more concentrated in pastoral and agricultural regions (see Zhang, Song, and Ma 1991:237). Considerable ethnic segregation in residence is illustrated in Map 1, which shows the percentage of each prefecture's population that was ethnic Chinese in 1990.

Xinjiang as a whole has prospered economically as a result of reform-era economic policies. Agriculture and industry grew rapidly during the 1980s, as did personal income (National Minority Affairs Commission 1990:43; see also Barnett 1993). Economic growth can be traced both to domestic exploitation of mineral reserves and to central government policies of decentralization and opening of Xinjiang's borders for trade with Central Asia and beyond (Aguignier 1988; Christofferson 1993; Malik 1992; Walsh 1993). Xinjiang has also benefited from national policies in the 1980s and early 1990s designed to facilitate educational development in minority areas (Dilger 1984; Postiglione 1992a, 1992b). In Table 2, we compare Xinjiang to China as a whole and to other western provinces, by indicators measuring demographic and socioeconomic characteristics and economic growth. According to these indicators, the level and pace of development in Xinjiang are close to the national mean and ahead of other western provinces. However, gross indicators may hide internal heterogeneity. To date, ethnic differences in socioeconomic characteristics, such as income, occupation, and education, have not been examined.

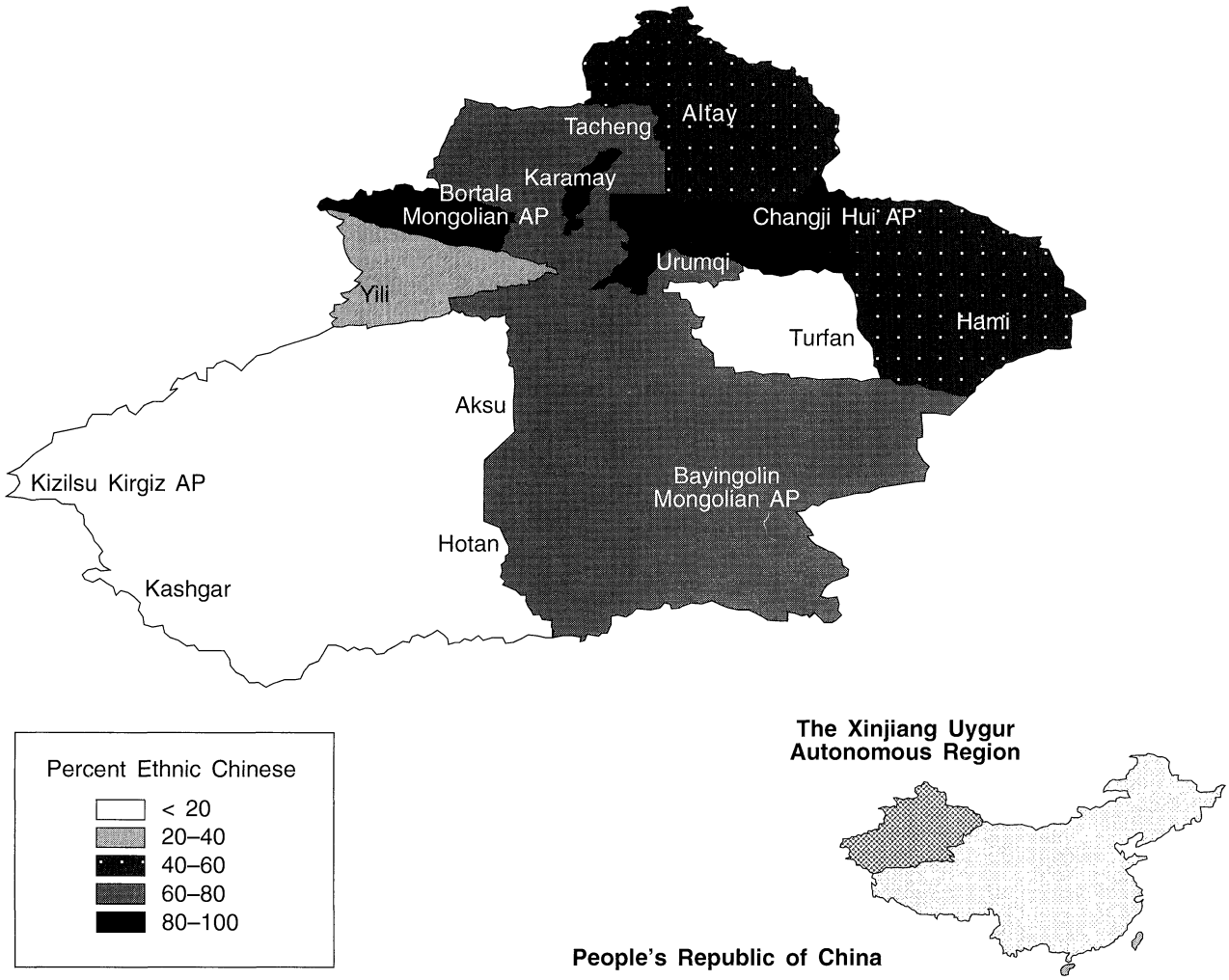
In the remainder of this paper, we focus on occupational stratification by ethnicity in Xinjiang. We first examine ethnic differentials in overall occupational distributions in 1982 and 1990. Next, we assess the role of education in contributing to the observed patterns and changes. We then perform a multivariate analysis that controls for geographic variation and focuses on the influence of education and ethnicity on occupational attainment in the two periods. We conclude by stating implications of results for future trends in ethnic stratification in Xinjiang.

DATA AND METHODS

Data for this study come from 1% samples from the 1982 and 1990 China Censuses in the Xinjiang Uygur Autonomous Region.[2] Using a definition of the employed popula-

2. The 1982 sample was a systematic sample from a random start point. The 1990 sample was clustered within counties, but distributions across characteristics such as educational attainment, agricultural/nonagricultural household status, ethnic groups, and prefectures for the sample fell within a few percentage points of figures published in the *Statistical Yearbook of Xinjiang 1991*. Banister's (1994:260) analysis of national 1982 and 1990 census data revealed no detectable undercounts in the working-age populations targeted here.

MAP 1. ETHNIC CHINESE (HAN) AS A PERCENTAGE OF THE TOTAL PREFECTURE'S POPULATION: XINJIANG, 1990



tion aged 25–44 at census time,[3] we drew a subsample of the labor force. This definition yielded sample sizes of 30,083 for 1982 and 37,495 for 1990. In the descriptive results that follow, we employed the major occupational categories that are commonly used in government publications on labor force statistics. The classification scheme closely corresponds to that of the 1969 United Nations International Standard Classification of Occupations (China Statistics Archives 1989; see Table 3 for a list of categories). As a summary measure of occupational differences, we used the index of dissimilarity, calculated as one half the summed absolute differences across ethnic groups in the proportion of workers in each occupational category:

$$\mathrm{ID} = (1/2) \times \Sigma_i \mid P(O_i \mid \text{National Minority}) - P(O_i \mid \text{Han}) \mid, \quad (1)$$

where $P(O_i \mid \text{National Minority})$ denotes the proportion in the ith occupational category among minority workers, and $P(O_i \mid \text{Han})$ denotes the proportion in the ith category for ethnic Chinese workers. In this context, the index of dissimilarity represents the minimum proportion of workers of either ethnicity that would have to shift to different occupations in order to produce an identical distribution across occupations.

For multivariate analyses, a multinomial logit model of occupational attainment was estimated. To facilitate interpretation of results, we collapsed the major occupational

3. Aggressive retirement policies implemented during the early 1980s prompted our selection of a low upper age limit as a means of ensuring comparability between 1982 and 1990 employed persons. Among 25- to 44-year-olds, the retirement rate was negligible in both years.

TABLE 2. DEMOGRAPHIC AND SOCIOECONOMIC DEVELOPMENT INDICATORS: CHINA AND INTERIOR PROVINCES, 1990[a]

	Demographic Characteristics			Socioeconomic Characteristics					Economic Growth Indicators[c]		
Region	Percent Minority	Number of Births per 1,000	Number of Deaths per 1,000	College Education Rate (%)	Illiteracy Rate (%)	Nonagricultural Labor Force (% of Total)	National Income (per Capita RMB[b])	Net Income of Peasant Households (per capita RMB[b])	Total Agricultural Output Value (1990/1986)	Total Industrial Output Value (1990/1986)	Net Income of Peasant Households (1990/1980)
National	8	21.0	6.3	1.59	20.61	39.77	1,178	630	1.91	2.14	3.29
Xinjiang	62	24.7	6.4	2.16	18.92	39.33	1,230	622	2.21	2.25	3.14
Other West Region											
Inner Mongolia	19	20.1	5.8	1.67	20.42	44.25	991	607	2.03	2.05	3.35
Guangxi	39	20.7	6.0	0.92	16.62	23.46	726	500	2.12	2.14	2.88
Sichuan	5	17.8	7.1	1.07	19.83	27.52	813	505	1.88	2.04	2.69
Guizhou	35	23.8	7.1	0.89	34.51	21.76	631	435	1.83	2.02	2.70
Yunnan	33	23.6	7.7	0.92	35.02	21.76	774	490	2.20	2.35	3.26
Tibet	96	27.6	9.2	0.66	70.40	19.89	785	437	1.73	1.82	N.A.
Gansu	8	22.9	5.9	1.27	36.73	34.58	859	399	1.83	1.93	2.60
Qinghai	42	22.7	6.8	1.69	38.55	39.99	1,044	514	1.74	2.06	N.A.
Ningxia	33	24.6	5.1	1.86	31.36	37.74	978	534	1.74	2.28	3.00

Sources: Percent minority, Number of Births, Number of Deaths: Poston and Yaukey (1992). College Education Rate and Illiteracy Rate: State Statistical Bureau (1993:86). Nonagricultural Labor Force: State Statistical Bureau (1991:100). National Income: State Statistical Bureau (1991:32, 37). Net Income of Peasant Households: State Statistical Bureau (1991:296). Total Output Value of Industry/Agriculture: State Statistical Bureau (1991:58); State Statistical Bureau (1987:47).

[a]Per capita national income figures are from 1989.

[b]RMB refers to nominal Ren Min Bi (Yuan).

[c]Growth figures were calculated using ratios of nominal RMB.

categories to create the following four categories: *Professional and Managerial*, *Clerical, Sales, and Service*, *Manufacturing and Transportation*, and *Agricultural*. Explanatory variables considered in the analysis are educational attainment, nationality, sex, age, urban-rural residence status, and prefecture of residence. Educational attainment was coded into the following categories: *Illiterate or Semi-Literate*, *Primary School*, *Junior High School*, *Senior High School*, and *College or University*. For multivariate analysis, the *Senior High School* and *College or University* categories were combined to form a *Senior High School+* category. Nationality was coded as a dichotomous variable with categories *Han* and *Minority*. Urban-rural residence was coded using an official, administrative division–based formula provided by the China State Statistical Bureau. Definitions of residence status can be found in China Statistics Archives (1989:31) and State Council and State Statistical Bureau (1991). Here, *Urban* denotes prefecture-level large cities as well as small cities under the administration of prefectures. *Rural* denotes counties, whether under the administration of prefectures or cities.

Measures of residence status and prefecture of residence are introduced into the analysis because the Han population of Xinjiang is relatively concentrated in urbanized and more developed areas, where schools and nonfarm jobs are more plentiful. Geographic segregation thus may contribute both indirectly and directly to occupational differences by ethnicity. The only suitable geographic control available in the census data, however, is location of current residence, which may be simultaneously determined with job assignment. There is no easy way to resolve this potential problem of reciprocal causality. Statistical disentangling of reciprocal causality would require instrumental variables that are not available in the census data. Instead, our strategy is to account for geographic segregation by controlling for prefecture of residence. Consisting of several counties, a prefecture is fairly large, so that job-related migration across prefectures is infrequent. Yet, economic and ethnic variations across prefectures are large enough to render the controls meaningful.

OCCUPATIONAL ATTAINMENT IN XINJIANG

Descriptive Results

Table 3 displays characteristics of the Xinjiang labor force in 1982 and 1990. The first two columns show the sample frequency and percentage distributions across major occupational categories as well as the index of dissimilarity (in percent) measuring Han-minority differences. Several observations arise from these figures. First, we observe a sizable decline in the percentage of the labor force in agricultural occupations during the period, from 58.9% in 1982 to 49.6% in 1990. Second, and more surprising, the index of dissimilarity increased appreciably from 39.1 to 45.7% in the eight-year period. The overall ethnic composition of the labor force changed little between 1982 and 1990, with minorities constituting 52.8% of the labor force in 1982 and 53.8% in 1990. Sharp changes occurred, however, in the ethnic composition of specific occupational categories. In particular, minorities were overrepresented in agriculture, and this overrepresentation intensified from 69.4% in 1982 to 76.7% in 1990.[4] Minorities were underrepresented in all other occupational categories. Whereas minority representation increased dramatically among service workers (from 25.8% to 41.2%), little change occurred in other occupational categories. The fourth column presents the percentage female among workers in each occupation. Women constituted about one half of agricultural workers in both 1982 and 1990, but among professional and technical workers, the percentage female increased from 45.1 to 55.3%. Both women and minorities continued to be underrepresented among workers in manufacturing and management.

A change also occurred between 1982 and 1990 in the educational composition of the labor force (Table 3, columns 5 and 6). The level of educational attainment of the labor force increased, most strikingly among incumbents of high-status jobs. The percentage college educated grew from 12% to 22% among professionals and technicians, from 5% to 24% among managers, and from 4% to 19% among clerical workers. The percentage illiterate among all occupational categories dropped in a similarly precipitous fashion. The improvement in educational attainment reflects not only the reopening of higher education following the Cultural Revolution but also special training programs conferring educational credentials to on-the-job workers, particularly cadrés (Ch'i 1991; Lee 1991).

The last column of Table 3 suggests another potential influence on occupational differences between the Han Chinese and minorities in Xinjiang—namely, differences in residential patterns. Workers in nonagricultural occupations were increasingly concentrated in urban areas. For example, in 1982, less than 23% of the total labor force but more than 30% of professional and managerial workers were located in urban areas. In 1990, 40% of workers but about 60% of professional and managerial workers were classified as urban residents.[5] Although the causal direction between residence and occupational attainment remains ambiguous, the larger proportion urban among the Han Chinese labor force suggests an occupational advantage associated with residence in

4. It has been suggested that work in agriculture may in some cases be a euphemism for not working. Primarily on the basis of comparisons of industry codes between published sources and census data, Banister (1994) argued that persons only sporadically involved in agricultural activities, who might more aptly be termed unemployed, are included in the agriculture occupational category.

5. The dramatically higher percentage urban in the 1990 labor force compared with the 1982 labor force reflects government policies allowing reclassification of dynamic rural townships and counties into urban towns and cities between 1982 and 1990. The 1990 census documentation contained two formulas for computing the urban population: one that followed the 1982 pattern of using administrative boundaries only, and a more restrictive formula counting as urban only those residents within city and town boundaries and under the jurisdiction of a neighborhood committee (Banister 1994:261–62). Constraints in available codes for 1982 dictated our adoption of the first method. For the total sampled population in Xinjiang, the percentage urban thus defined was 20.1% in 1982 and 34.7% in 1990.

TABLE 3. CHARACTERISTICS OF THE LABOR FORCE IN XINJIANG, 1982 AND 1990

Occupation	Occupational Distribution		Percentage of Workers Who Are:				
	N	Percentage	Ethnic Minorities	Women	College Educated	Illiterate	Rural Residents
1982							
Professional and technical workers	3,164	10.5	38.3	45.1	11.7	0.2	65.7
Managers and administrators	628	2.1	30.3	9.7	4.6	2.7	66.6
Clerical workers	764	2.5	34.7	22.9	4.1	1.4	57.1
Sales workers	526	1.7	42.4	55.9	0.8	11.0	57.8
Service workers	917	3.0	25.8	57.8	0.0	17.7	54.7
Agricultural workers	17,712	58.9	69.4	52.1	0.0	39.0	91.9
Manufacturing and transportation workers	6,353	21.1	23.2	37.2	0.2	14.1	52.2
Other	19	0.1	57.9	42.1	5.3	21.1	84.2
Total	30,083	99.9[a]	52.8	46.8	1.5	26.8	77.6
Han: minority index of dissimilarity	39.1						
1990							
Professional and technical workers	4,121	11.0	40.8	55.3	21.7	0.1	40.6
Managers and administrators	959	2.6	28.8	12.5	23.6	0.1	37.3
Clerical workers	1,351	3.6	36.8	32.5	18.5	0.3	34.9
Sales workers	1,683	4.5	38.4	50.7	0.9	7.7	36.8
Service workers	1,431	3.8	41.2	56.5	0.5	8.5	37.0
Agricultural workers	18,601	49.6	76.7	50.0	0.0	19.9	85.2
Manufacturing and transportation workers	9,334	24.9	23.7	36.4	1.2	5.7	31.6
Other	15	0.0	20.0	46.7	0.0	6.7	40.0
Total	37,495	100.0	53.8	45.9	4.0	12.0	59.9
Han: minority index of dissimilarity	45.7						

Sources: 1982 and 1990 census 1% samples.

[a]Column does not sum to 100.0 due to rounding.

regions with better-developed educational and industrial infrastructures.

Sources of Ethnic Differences

The temporal coincidence of increasing ethnic differences in occupational attainment and an apparent strengthening of the association between higher education and occupational attainment implies that educational factors may, in part, explain the increase in occupational differences by ethnicity. Evaluation of this statement requires an examination of differences in the educational attainment of the labor force in 1982 and 1990 and an assessment of the contribution of education to overall ethnic differences in occupational attainment.

Table 4 shows the educational distribution of Xinjiang's labor force by year, ethnicity, and sex. Educational attainment increased markedly between 1982 and 1990 for both ethnic minorities and the ethnic Chinese. Among the Han, illiteracy rates dropped from 9.7% to 3.3% among men and from 27.8% to 9.1% among women; among minorities, the illiteracy rate dropped from 29.3% to 15.4% among men and from 40.3% to 19.4% among women. At the opposite end of the educational spectrum, college education rates rose dramatically, from 2.8% to 7% among Han men, from 1.3% to 4.4% among Han women, from 1.2% to 3.3% among National Minority men, and from 0.7% to 1.5% among National Minority women. Equally important is that, despite educa-

TABLE 4. EDUCATIONAL COMPOSITION OF THE LABOR FORCE, BY ETHNIC CATEGORY AND SEX: XINJIANG, 1990

	1982				1990			
	Men		Women		Men		Women	
	Han	Minority	Han	Minority	Han	Minority	Han	Minority
Post-Secondary School (%)	2.76	1.23	1.34	0.69	7.03	3.25	4.42	1.53
University	—	—	—	—	1.28	1.20	0.41	0.53
Junior college	—	—	—	—	5.75	2.05	4.01	0.99
Senior High School (%)	12.76	7.74	10.52	5.02	24.94	12.76	26.46	11.05
Academic	—	—	—	—	19.45	7.78	19.90	6.18
Technical	—	—	—	—	5.49	4.98	6.57	4.87
Junior High School (%)	36.79	20.61	28.02	13.62	48.25	25.63	41.19	19.83
Primary School (%)	37.96	41.12	32.37	40.34	16.51	42.96	18.86	48.21
Illiterate (%)	9.73	29.30	27.75	40.33	3.28	15.39	9.06	19.38
Total[a] (%)	100.00	100.00	100.00	100.00	100.01	99.99	99.99	100.00
Number of Observations	7,306	8,686	6,880	7,211	9,294	10,999	8,026	9,176
Mean Years of Education[b]	6.10	4.47	4.97	3.66	7.91	5.59	7.33	4.98

Sources: 1982 and 1990 census 1% samples.

[a]Total does not include values for University, Junior College, Academic, or Technical. Columns may not sum to 100.00 due to rounding.

[b]Estimated mean years of education were calculated using comparable codes for both years, according to the following coding scheme: Illiterate = 1 year, Primary = 4 years, Junior High School = 7.5 years, Senior High School = 10.5 years, and Post-Secondary School = 14 years. (Educational categories indicate the level ever attained rather than the level completed.)

tional improvements across the board, Han-minority differences in education grew during the 1980s. This point is summarized in the growing ethnic gap in estimated mean years of education: Between 1982 and 1990, the difference grew from 1.6 years to 2.3 years among men and from 1.3 years to 2.4 years among women.

The contribution of education to ethnic differences in occupational attainment is evaluated in Table 5.[6] The first two columns represent distributions across occupational categories by ethnicity and period. The subsequent column represents minorities' occupational distribution after standardization by education. The standardized distribution was calculated by applying the Han educational distribution to minorities. To summarize the reduction in ethnic differences produced by eliminating compositional differences in education, we compared indices of dissimilarity before and after the standardization. Table 5 shows that accounting for ethnic differences in education reduced the index of dissimilarity substantially, from 39.09 to 29.38 in 1982 and from 45.7 to 30.03 in 1990. With educational differences controlled, there was no marked change in the index of dissimilarity, which remained around 30% in both 1982 and 1990.

In sum, the apparent strengthening of the relationship between educational attainment and occupational outcomes and the faster rise in education among Han Chinese than among ethnic minorities suggest that education served to exacerbate occupational differences by ethnicity. This interpretation is supported by the absence of an increase in ethnic differences in occupational attainment once we account for educational composition.

Geographic disadvantages, however, affect the educational and occupational opportunities available to the ethnic minority population of Xinjiang. Accounting for geographic factors could alter the conclusions reached in this section. To address this possibility, we incorporated a measure of geography into our examination of the impact of education and ethnicity on occupational attainment.

Multivariate Analysis

To examine the relationship between ethnicity and occupational attainment in a multivariate context, we estimated a multinomial logit model predicting occupational attainment. Results from this analysis are presented in Table 6. Three columns of logit coefficients represent the effects of the explanatory variables on the log-odds of attaining (1) professional and managerial jobs, (2) clerical, sales, and service jobs, and (3) manufacturing and transportation jobs, all relative to agricultural jobs. Controls in the model for age, geographic effects, and gender reveal an increased likelihood of working outside of agriculture for older labor force participants, men, and urban residents. Of analytic interest are the nationality and education variables, interactions between them, and their interactions with time.

6. We drop from subsequent bivariate and multivariate analyses the 34 cases falling into the "Workers not Classifiable by Occupation" category.

TABLE 5. OCCUPATIONAL DISTRIBUTION OF THE HAN AND ETHNIC MINORITY LABOR FORCE, 1982 AND 1990

		National Minority	
	Han	Unstandardized	Standardized by Education
1982			
Professional and technical workers (%)	13.77	7.62	12.83
Managers and administrators (%)	3.09	1.20	1.93
Clerical workers (%)	3.52	1.67	2.83
Sales workers (%)	2.14	1.40	1.86
Service workers (%)	4.80	1.49	1.74
Agricultural workers (%)	38.26	77.35	67.62
Manufacturing and transportation workers (%)	34.43	9.27	11.16
Han: minority index of dissimilarity	—	39.09	29.38
1990			
Professional and technical workers (%)	14.10	8.33	17.22
Managers and administrators (%)	3.95	1.37	2.76
Clerical workers (%)	4.93	2.46	4.98
Sales workers (%)	5.99	3.21	4.27
Service workers (%)	4.86	2.92	4.02
Agricultural workers (%)	25.03	70.73	51.90
Manufacturing and transportation workers (%)	41.14	10.98	14.87
Han: minority index of dissimilarity	—	45.70	30.03

Sources: 1982 and 1990 census 1% samples.

Note: Standardized figures apply the Han educational distribution to minorities and assume a stable education-to-work transition matrix.

The coefficients presented in Table 6 illuminate three issues not explicitly addressed in the previous sections: (a) whether the influence of ethnicity on occupational attainment persists with education and geography controlled; (b) whether occupational returns to education differ by ethnicity; and (c) whether the effects of ethnicity and education changed between 1982 and 1990. First, we observe a strong negative effect associated with minority status. For example, the odds of working in a professional or managerial position rather than in agriculture were 56% lower in 1982 for primary-educated ethnic minorities than for their Han Chinese counterparts [1 – exp(–.82)]. The penalty associated with minority status did not change over time, as the nationality-by-year interaction is not significantly different from 0 for any of the occupational outcomes. The nationality-by-education interactions provide evidence that education brings equal or better returns to minorities than to the Han: Coefficients on junior and senior high school attainment were all positive in sign, and were significantly positive, except for senior high school attainment in the professional and managerial outcome. Finally, the education-by-year interactions, particularly the large positive coefficients on junior and senior high school educational attainment for the professional and managerial outcome, confirm earlier results suggesting a strengthening association between educational attainment and high-status occupational outcomes.

The implications of the logit results presented in Table 6 are illustrated graphically in Figure 1, which shows predicted occupational distributions by education, ethnicity, and year.[7] From Figure 1, we observe that working in professional/managerial jobs increasingly required at least a senior high school education. Further, a senior high school education was less of a guarantee of this outcome in 1990 than in 1982. Figure 1 also suggests an overall narrowing of ethnic differences in occupational distribution at higher levels of education, produced by the higher returns to junior and senior high school educational attainment for minorities than for Han.

The predicted occupational distributions also underscore two points not immediately evident from the logit coefficients. First, ethnic differences net of education were negligible in both years for the professional/managerial category. Educational and geographic controls incorporated into the model essentially erased the ethnic gap in high-status occupational attainment. Referring again to the education-standardized occupational distribution in Table 5, we observe that educational composition alone accounts for ethnic differences in professional and technical occupational attainment, and much of the ethnic gap in the attainment of management and administrative positions. Second, and in stark contrast, large ethnic differences in agricultural and manufacturing occupational outcomes persisted after both educational and geographic controls were introduced.[8] We conclude that education is a key source of ethnic differences in the attainment of higher-status occupations, but other factors heavily influence ethnic differences in blue-collar and agricultural occupational attainment.

7. For these predictions, sex, prefecture, urban-rural residence, and age were held at actual sample values; values for ethnic group, education, and year were set to specified values. Predictions were made at each combination for the entire sample, and means were taken, resulting in the predicted probabilities presented in the figures. Predicted probabilities thus illustrate ethnic differences in occupational outcomes, controlling for the set of independent variables listed in Table 6.

8. Ethnic differences without the controls were greater. Figure 1 shows, for example, a gap of 26.39 percentage points in the likelihood of agricultural employment in 1990 at the primary educational attainment level; the corresponding probabilities calculated from the raw data disclosed an ethnic gap of 43 percentage points.

TABLE 6. ESTIMATED COEFFICIENTS FOR A MULTINOMIAL LOGIT MODEL PREDICTING OCCUPATIONAL ATTAINMENT

	Base Category = Agricultural					
	Professional and Managerial		Clerical, Sales, Service		Manufacturing and Transportation	
	Parameter	Standard Error	Parameter	Standard Error	Parameter	Standard Error
Constant	–3.79**	0.14	–0.99**	0.13	2.05**	0.10
Age	0.09**	0.00	0.04**	0.00	0.00	0.00
Sex	–0.20**	0.03	–0.30**	0.03	–0.82**	0.03
Nationality	–0.82**	0.08	–1.65**	0.07	–1.75**	0.05
Education						
Illiterate	– 3.17**	0.28	–1.25**	0.10	–0.90**	0.06
Junior high school	1.77**	0.07	0.69**	0.07	0.35**	0.05
Senior high school+	4.02**	0.09	1.77**	0.10	0.70**	0.09
Nationality × Education						
Illiterate × Minority	0.07	0.38	0.67**	0.11	0.45**	0.08
Junior high school × Minority	0.20*	0.10	0.91**	0.08	0.57**	0.06
Senior high school+ × Minority	0.02	0.11	0.86**	0.10	0.42**	0.09
Year	–1.60**	0.10	0.01	0.07	–0.35**	0.05
Nationality × Year	–0.03	0.07	0.01	0.07	–0.09	0.05
Education × Year						
Illiterate × 1990	0.74	0.50	0.83**	0.11	0.69**	0.08
Junior high school × 1990	0.71**	0.11	–0.07	0.08	0.30**	0.06
Senior high school+ × 1990	1.55**	0.12	0.34**	0.10	0.73**	0.09
Residence Status	1.05**	0.04	1.39**	0.04	1.54**	0.03

Sources: 1982 and 1990 census 1% samples.

Note: Reference categories are Male for Sex, Han for Nationality, Primary School for Education, 1982 for Year, and Rural Resident for Residence Status. Indicator variables for prefectures not shown.

*$p < .05$; **$p < .01$

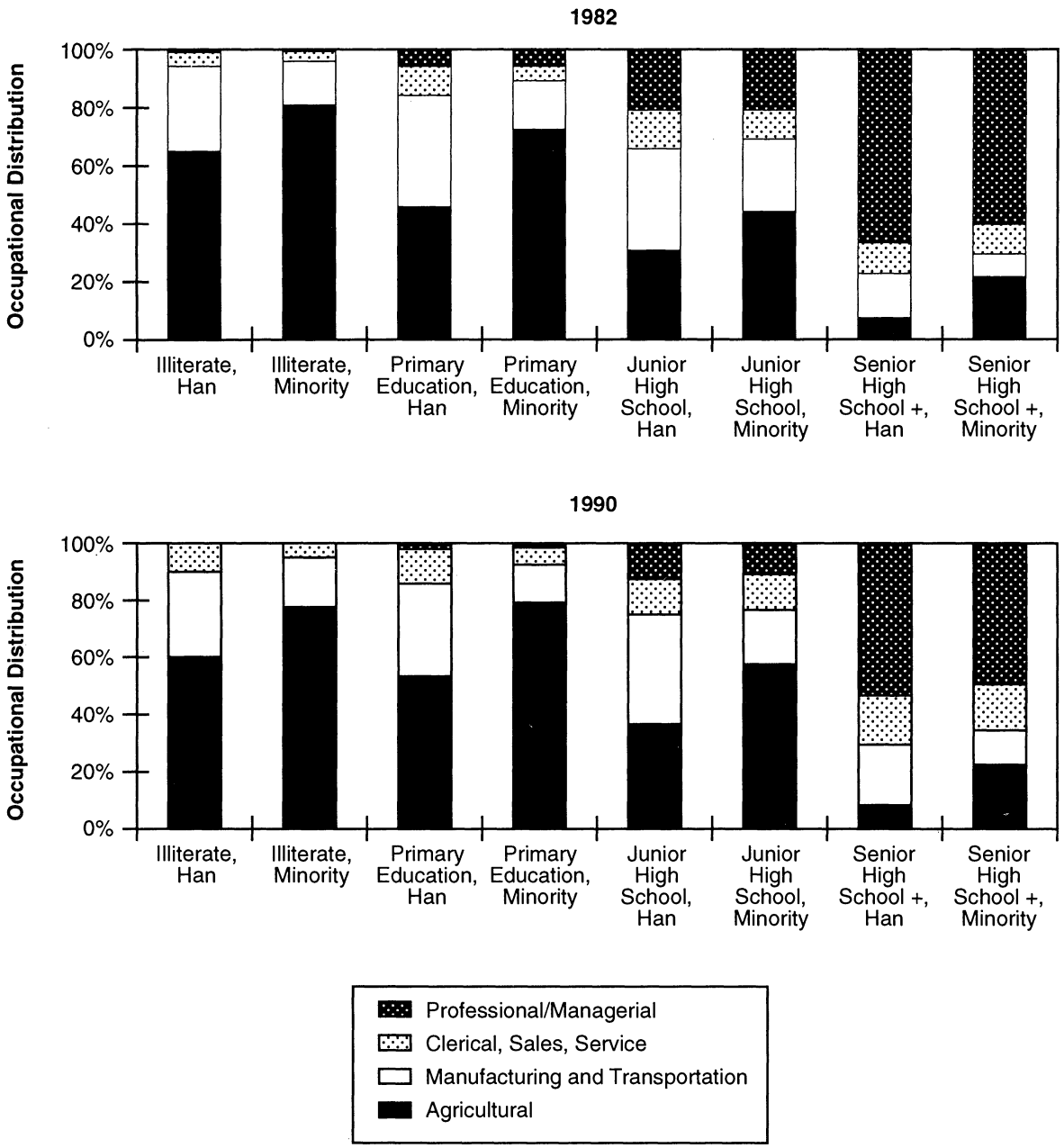
In sum, multivariate analyses revealed ethnic differences in the distribution across occupations that narrowed at higher levels of educational attainment. With education controlled, ethnic differences in professional and managerial occupational attainment were small. Occupational differentiation by ethnicity, however, remained severe net of education in the ranks of agricultural and blue-collar occupations, with ethnic minorities dominating the former and Han the latter. Major changes between 1982 and 1990 emerged only in the rising association between education and occupational attainment. These results suggest an increase in the role of education as a gatekeeper for access to high-status occupations. Educational stratification also serves as the most plausible explanation for the increase in ethnic differences in occupational attainment observed between 1982 and 1990.

CONCLUSIONS

Attention to ethnicity has been essentially absent from studies of stratification change associated with market reforms in China. In this paper, we have begun to address the omission with an empirical examination of occupational-attainment differences between Han Chinese and the primarily Turkic Muslim minorities residing in Xinjiang. Results present a mixed picture of occupational stratification in the region. Educated minority workers had opportunities for high-status employment similar to comparably educated ethnic Chinese, and educational attainment among minorities in Xinjiang is on an upward trajectory. Moreover, the role of education as a prerequisite for working in high-status occupations increased in the 1980s. The ethnic gap in occupational attainment, however, widened between 1982 and 1990, largely because of an increased educational gap between ethnic Chinese and ethnic minorities. In addition, Han-minority differences in manufacturing and agricultural occupations remained large after we accounted for educational and geographic differences, indicating that additional factors play an important role in determining these differences.

Taken together, these results demonstrate that rationalization of the allocation of occupations, reflected in the ris-

FIGURE 1. PREDICTED OCCUPATIONAL DISTRIBUTIONS BY ETHNIC GROUP, EDUCATIONAL ATTAINMENT, AND YEAR



ing association between education and high-status occupational attainment, has not reduced ethnic differences in occupational attainment. Moreover, a reversal of the occupational attainment differences documented here is unlikely for the immediate future. Continued educational expansion among minorities combined with equal access to professional occupations contingent on education may facilitate an absolute increase in minority presence among these occupations. However, ethnic differences in education among school-aged children persist,[9] implying a continued ethnic gap in high-status occupational attainment. In addition, large ethnic differences in blue-collar and agricultural occu-

9. Among 15- to 18-year-olds in the 1990 census, 56.9% of minority children reported primary or lower educational attainment, whereas 11.5% reported senior high school or higher; for Han Chinese children, the corresponding figures were 8.7% and 26.0%.

pations net of education indicate that ethnic differences in the attainment of these occupations will not prove immediately responsive to educational expansion. These findings highlight the complex implications of recent social and economic changes in China for the nation's Turkic minorities. Whether conclusions reached here apply to ethnic groups in other regions remains an open question for further empirical verification.

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