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SOCIOECONOMIC BACKGROUND AND WAR MORTALITY DURING VIETNAM'S WARS*

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To understand the experience of North Vietnamese soldiers and civilians during the American war, I explore the paths leading Vietnamese men into battle by considering the relationship between socioeconomic status and war mortality. I use data obtained from retrospective information on kin survival and other socioeconomic characteristics given by respondents in the 1995 Vietnam Longitudinal Survey conducted in Vietnam's Red River Delta. My findings are opposite to those often cited to describe the experience of young Americans who fought in the Vietnam war. In Vietnam, sons of better-educated fathers bore the burden of war disproportionately in relation to sons of fathers with less education, both in proportion serving in the military and in diminished survival chances in combat. The Vietnamese experience during the American war testifies to the ability of a nation to reorder society temporarily and to persuade higher-status groups to contribute fully to the war effort. An appreciation of the meaning of this social reshuffling during the American war is critical for understanding the war, Vietnam, and that country's political outlook.

But I never sensed any concern for the other side. How many did the Vietnamese lose? How many people were killed in the village? How many South Vietnamese, how many North Vietnamese, how many Vietcong? It was *our* lives, *our* country; and they didn't figure, those people.

— Ramsey Clark, Johnson's attorney general, telling about the president's 3 a.m. trips to the situation room to learn how many U.S. planes had been shot down and how many had hit the target (Young 1991:178)

In the wake of the Vietnam war, behavioral and social scientists have produced numerous studies on the impact of war on American society.[1] In keeping with a sharpened American interest in this subject, originating in a widespread need to come to terms with the Vietnam conflict through social science as well as through literature and political discussion (Modell and Haggerty 1991:206), this scholarship has examined the implications of military manpower recruitment and training, as well as the psychological and economic implications of wartime service in the United States. Yet there exist no such studies on the experience of Vietnamese soldiers and civilians during that struggle. This is the case because we lack empirical data that allow us to explore the impact of war on Vietnamese society; because Americans generally regarded that war essentially as an American drama; and because of a dehumanized image of the enemy, created by the U.S. political and military climate of the time.

During the "American war,"[2] the losses endured by Vietnam were 100 times greater than those suffered by the United States (Hirschman, Preston, and Vu 1995:809). Yet this conflict was only one episode, though certainly the major one, in a period of about 40 years of war in Vietnam, starting with the war of independence from France in 1946–1954 and continuing until the postwar unification period following the victory of the North Vietnamese forces in 1975. This period set the scene for Vietnam's confrontation with its neighbors: The two main events were Vietnam's decade-long invasion of Cambodia, launched in December 1978, and the war against China waged in February 1979.[3]

There is little empirical evidence on the social impact of war in Vietnam. Insofar as the quantification of the suffering and dislocation endured by Vietnam during the American war is an aspect of the war's impact on society, Hirschman et al.

1. For a complete review of this literature, see Modell and Haggerty (1991).

2. I use the term *American war* to reflect the Vietnamese perception of the escalation of the war between 1965 and 1975 as a result of American intervention.

3. The quantification of human losses helps to place the intensity of these consecutive wars in perspective. Estimates of the number of Vietnamese military and civilian casualties during the war of independence from France range from 300,000 dead and 300,000 wounded (Clodfelter 1995:33) to half a million dead and 1 million wounded (Harrison 1989:124). The magnitude of Vietnamese war losses during the American war is similarly controversial. Hirschman et al. (1995) discuss the wide range of estimates of Vietnamese war casualties, from 1,234,000 Vietnamese military and civilian deaths between 1965 and 1974 (Lewy 1978, cited in Hirschman et al. 1995:791) to 2,358,000 between 1960 and 1975 (McNamara 1991, cited in Hirschman et al. 1995:791). Hirschman et al. then provide their data-based estimate of Vietnamese war mortality: approximately 1 million military and civilian casualties between 1965 and 1975 (Hirschman et al. 1995:805–807). The invasion of Cambodia reportedly cost Vietnam 25,300 dead and 55,000 wounded (Clodfelter 1995:286); the estimated body count of the war against China is about 10,000 (Clodfelter 1995:288). The total number of U.S. military deaths in Vietnam was placed at 56,000 (Lewy 1978:451).

are the only scholars who have dealt with these themes on the basis of empirical data. Using retrospective reports on kin survival from the Vietnam Life History Survey (VLHS), a small survey conducted in two North and two South Vietnamese localities, Hirschman and colleagues estimated mortality trends in Vietnam over the last five decades, compared war and nonwar mortality across four historical periods from the period before 1954 to 1991, and provided an estimate of the total number of Vietnamese war-related deaths from 1965 to 1975. Yet because of the small sample of war deaths, mortality estimates for some of the periods and ages examined had to be evaluated with an awareness of the potential effects of sampling errors.

Following the lead of Hirschman et al., in the first part of this paper I gauge the war mortality of the population of one province (Ha Nam Ninh) of the Red River Delta, who suffered greatly from Vietnam's consecutive wars. The data are provided by the 1995 Vietnam Longitudinal Survey (VLS). Because a larger sample of deaths is documented in the VLS than in the VLHS, war and nonwar mortality can be compared for each of the historical periods studied. As a result, I can obtain more robust estimates of mortality, especially of war deaths, and I can assess more reliably the imprint of consecutive wars on the population of Ha Nam Ninh Province. Using information on paternal education and other socioeconomic characteristics of fathers of respondents to the VLS survey and of the respondents' siblings, I also provide a socioeconomic profile of those who fought and died in the American war. Ultimately this work raises the important issue of the social impact of war in Vietnam.

THE SOCIAL IMPACT OF WAR

In the United States, questions of class bias in military service and in military losses have been explored by social scientists concerned with the impact of war on society among young Americans who served in the military during the Vietnam war. According to the class-bias hypothesis, the burden of fighting in the Vietnam war was borne disproportionately by poor Americans. Empirical examinations of this hypothesis, however, have yielded inconsistent results, mostly because of difficulties in obtaining the appropriate data and because of differences in the analytical approach used. Most of these studies (Badillo and Curry 1976; Barnett, Stanley, and Short 1992; Willis 1975) infer class origin from the socioeconomic characteristics of soldiers' census tracts, hometowns, or states and compare casualty rates across these units. They generally conclude that casualty rates are higher in less affluent states or census tracts than in wealthier locations. Yet findings based on ecological studies are not conclusive because inferences about individual soldiers' social class origins cannot be drawn from data on the characteristics of their hometowns, counties, or states.

Other tests of the class-bias hypothesis have used individual-level retrospective and longitudinal data (Shields 1981; Useem 1980). Modell and Haggerty's (1991:209–10)

review of these studies reveals that U.S. military service during the Vietnam war was not distributed in any straightforwardly inequitable fashion: The relationship between socioeconomic status and military service seemed to depend on the mechanisms that allowed young men from well-placed families to prolong their education or to claim and receive medical deferments for minor ailments.

Is class bias in the North Vietnamese military during wartime a plausible hypothesis characterizing the paths leading Vietnamese men into battle in a country such as Vietnam, whose party-government has been quite true to Marxism-Leninism, with all the familiar themes this doctrine entails? I ask this question with the awareness that governments engage in war by sharply differing means, in terms of their ideological orientation, their pursuit of national interest, and the military manpower systems employed. My investigation of the relationship between war and social structure in Vietnam rests on the proposition that war represents a temporary reorganization of society, and that governments during wartime ask individuals to be something that they have not been previously.[4]

THE VIETNAMESE EXPERIENCE

The main feature of modern Vietnamese history is Vietnam's quest for national unity and independence from foreign domination. This quest motivated the country's unique approach to social revolution, as the Vietnamese Communists achieved leadership of the struggle for national independence through accommodation with existing social arrangements and group identities. From the early stages of preparation for the war against France, the Viet Minh advocated a broad coalition of classes. Yet the long duration of the war against the French left the objective of national unity incomplete; it generated an even stronger commitment to the concept of nationalism and of a multiclass national united front (Turley 1980:178).

An example of this unique approach to social revolution was the creation of the People's Army of Vietnam (PAV). The idea behind the social composition of the PAV of the Democratic Republic of Vietnam (DRV) (1945–1975) was that it must reflect the class and cultural characteristics of the population and that it must be an institutional force with which the population could identify. These bonds of identity initially were strengthened by allowing the most rapid upward mobility to individuals from the peasant and tenant farmer classes (Turley 1972:72–73). In late 1964, however, as soon as the United States became irreversibly involved in the war by launching the first bombing campaigns against the North, the focus in North Vietnam shifted to militarization of the whole society. Because of the need to compensate for poor material resources with an abundance of human zeal, the social class composition of the armed forces became secondary to the urgent call for a collective effort to defeat the American forces and their South

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4. This idea is based loosely on the analytical structure for the social framework of war proposed by Modell and Haggerty (1991:219–21).

Vietnamese allies (Turley 1972:162). The war, in other words, forced the Vietnamese to strike a balance between national salvation and social revolution. PAV propaganda teams toured the countryside in an effort to organize "civilian-military unity days," and established local militia units (Turley 1986:90). These units were composed mainly of farmers and workers; they assisted regular and regional forces whenever they needed help, mainly with anti-aircraft units (Van Dyke 1972:123–25).

This gigantic war effort enlisted each and every stratum of the North Vietnamese population. In rural areas, the loss of men to the army was offset by mobilizing women in agriculture much more extensively and by expanding the irrigation system and the use of pumps, because the war, especially the prospect of the American bombing, had shifted the emphasis from industrialization to food production. In 1967 women composed 70% of the rural workforce (Kolko 1985: 266).

The North Vietnamese relied on propaganda to instill the fervor needed for the required sacrifices. They promoted the idea that joining the army was prestigious. The advantages of this choice were conveyed by the privileges provided to young men: advancement to the next grade in school at the end of the military tour of duty without passing the examination, and admission into the Labor Youth Group, an organization valued mostly for its prestige (Van Dyke 1972:111). Moreover, if a PAV soldier was killed or wounded, his family was protected and his children received preference in education and jobs (Kolko 1985:260). Other important factors were unemployment and underemployment due to the dismantling of major industries and a halt to production before the bombing started; for lack of competing opportunities, these conditions favored mobilization (Van Dyke 1972:78–79).

Each of these "pull" and "push" factors would suggest fairness in the paths leading Vietnamese men to serve in the military. It would be plausible to expect that individuals from more advantaged classes were as likely as their lower-status compatriots to serve in the military.

In Vietnam, however, as in other eastern and southeastern Asian societies, the family is the core social unit, which provides social and emotional support (Hirschman and Vu 1996).[5] When a young man joined the army, he cut himself off more or less permanently from his family (Van Dyke 1972:121) because commitment for the duration of the conflict was part of his induction into the army. Families may have attempted to use their social status and connections to minimize their sons' chances of going to war. Those with financial or political means, or those in cities, where opportunities were greater for those of higher social status, may have been in a better position to arrange their sons' avoidance of military service. A father's Communist Party membership,

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5. The recruitment strategy of the National Liberation Front (Hanoi's revolutionary organization in South Vietnam) illustrates the recognition of the family's importance as a source of security and support. This strategy centered on convincing young recruits to transfer their loyalty from the family to the Party (Lanning and Cragg 1992).

for example, may have proved important in protecting his sons from risky military service during the American conflict. Even during this conflict, when the society was totally mobilized for war, there were opportunities for protection against military conscription. Although conscription applied to all males age 18 to 45, a draft deferment policy was in effect. It applied to the physically disabled, to sole remaining sons, to young men who were the principal support of their families, to selected Party functionaries, to the most talented college students, and to technicians with special skills (Smith et al. 1967:409–10).

The class-bias hypothesis assumes that socioeconomic differentials in mortality are a direct consequence of social selection into the army. Yet it is possible that after joining the military, individuals from the most advantaged classes were assigned hazardous positions because they were regarded as more able to fill such positions; thus their chances of dying in combat were increased. Similarly, during World War II, American soldiers from more affluent states were more likely to be assigned to hazardous positions as pilots, low-ranking infantry officers, and aircraft crew members because they had the required educational qualifications (Willis 1975). In World War I the subalterns, the most dangerous rank in the army, were recruited from the well-to-do and the better educated; therefore higher casualties among individuals of higher socioeconomic status were a direct consequence of social selection of the officer corps (Winter 1986:64).

Several questions can be posed to test the class-bias hypothesis among North Vietnamese men during the American war. Did the war equalize the threat of military losses for all North Vietnamese men? To what extent did their socioeconomic background determine their life chances in the armed forces? Was the inequitable distribution of combat duty, which diminishes survival chances of one group relative to the other, determined by an inequity in the routes leading to the army, or was differential war mortality determined by differences in military and combat roles?

THE VIETNAM LONGITUDINAL SURVEY

The VLS was conducted in September–November 1995 as the baseline of a five-year longitudinal survey (1995–1999) in Ha Nam Ninh Province in the Red River Delta, the heartland of North Vietnam. A total of 1,855 households were selected across 10 communes; the communes were chosen randomly from four strata on the basis of their distance from Highway 1, Vietnam's major highway. Since 1989, the year of the most recent census, these areas have undergone two administrative redefinitions. In 1995, when the VLS was conducted, Ha Nam Ninh was made into two provinces: Nam Ha and Ninh Binh. In 1997 it became three provinces: Nam Dinh, Ha Nam, and Ninh Binh. Despite this administrative fragmentation, the original boundaries of Ha Nam Ninh Province have remained intact.

In 1989, Ha Nam Ninh Province had a population of 3,156,931, or 4.9% of the total population of Vietnam. As a province of the Red River Delta, historically the most

densely populated region of the country, Ha Nam Ninh has a density of 832 persons per square kilometer, much higher than the national average of 195 persons per square kilometer. Ha Nam Ninh, however, is less urban than Vietnam as a whole: Only 10% of its population is urban, compared with 20% nationwide (Vietnam General Statistical Office 1991). In 1989 the crude death rate was 6.9 per 1,000 and the infant mortality rate was 33 per 1,000 live births. These rates are slightly higher than the rates of 6.5 and 32 for the whole Red River Delta region (Vietnam Population Census—1989 1994), but lower than the national rates of 8.05 and 46 (Vietnam General Statistical Office 1991). The total fertility rate was 3.3, lower than the national figure of 3.8 (Vietnam Population Census—1989 1994).[6]

The population of Ha Nam Ninh suffered greatly during the colonial period and again during the American war period. In the winter of 1944–1945, a famine killed hundreds of thousands in the Red River Delta (Chaliand [1968] 1969; Ngo 1973); during the war of independence against the French, entire villages were bombed and ground combat was fierce (Duong 1985). The areas where the survey was conducted were bombed heavily during the American war because of their proximity to important railroad links and industrial installations. In 1966–1967, when U.S. bombing campaigns were intensified, Nam Dinh was the target of numerous air raids (Van Dyke 1972:236; Young 1991:193). The capital of Ninh Binh Province was leveled, and many villages in Ninh Binh were destroyed (Chaliand 1969:229–35).

The VLS household questionnaire collected standard demographic information on all persons in the household, as well as basic information on housing characteristics and ownership of consumer goods. In addition, an individual questionnaire was administered to each household member age 15–65, for a total of 4,464 completed questionnaires. The individual data include basic demographic information, information on marriage, migration, fertility and contraceptive histories, educational attainment, employment and income generation, military service, family structure, and coresidence when respondents were growing up. In addition, respondents were asked questions about the survival status of their parents and siblings, and about the education and economic activities of their kin. Respondents were asked to provide the birth year of mother, father, and siblings, to state whether those family members were still alive at the time of the interview, and, if they were deceased, to give their ages at death. In an additional question about cause of death, military deaths (while serving in an army or militia) were distinguished from civilian deaths as a result of war and from "normal" deaths.

Table 1 provides a basic description of the data set. The information concerning the 8,536 parents and 20,282 siblings in the first and second panels was provided by 4,268 respon-

dents. The balance of the respondents (4,464 – 4,268 = 196) are siblings of other respondents living in the same household. They were excluded to avoid duplicate reporting due to having the same parents and siblings. The columns indicate the numbers of parents and siblings still alive, the numbers dead at time of interview, the numbers dead with age at death known and unknown, and the percentage surviving to the date of interview.

The number of persons alive at each age and for each calendar year is estimated from the sample of parents and siblings.[7] The sample of 27,686 parents and siblings (27,826 – 140 with year of birth known but age at death unknown) with known year of birth and known age at death yielded a total of 918,539 person-years of exposure, which provide the basis for calculating unadjusted mortality rates. Unadjusted rates are used in the analysis of socioeconomic background and war mortality in the second part of this paper. In the first part I examine mortality trends and patterns on the basis of an analysis of "adjusted rates"; these rates include the allocated deaths for deceased kin with missing data, and the person-years lived of deceased kin with missing data on year of birth and/or age at death (Hirschman et al. 1995:797), for a total of 941,059 person-years of exposure. This total is based on 27,686 parents and siblings with known dates and 675 deceased parents and siblings with allocated deaths (535 with year of birth unknown plus 140 with age at death unknown).

The substantive focus of this paper on adult mortality reduces the problem of obtaining accurate estimates of infant and child mortality posed by missing data.[8] Estimates of mortality are likely to be biased not only by procedures for handling missing data but also by other factors discussed in detail by Hirschman et al. (1995:797–98). The factors relevant to this paper are as follows: (1) Because the kinship survivor method misses clustered deaths, as entire families may have been killed by extensive bombing campaigns, mortality estimates are likely to be biased downward; and (2) Selective emigration of higher socioeconomic groups or the absence of person-years of exposure of living kin with missing dates of birth in the denominator will result in an overestimation of mortality rates.

Table 2 presents a more fully detailed picture of deaths by year and age of death, and by cause of death. Military deaths, civilian war deaths, and "normal" deaths were assigned to the major historical periods of war and peace on the basis of year of death (obtained indirectly as the sum of year of birth and age at death). These periods are (1) the years before 1955, representing the colonial era and the French war; (2) the period between 1955 and 1964, a time

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6. According to the 1994 Intercensal Demographic Survey, IMR and TFR have since decreased to estimated 1989–1993 national averages of 44.18 and 3.3 respectively (Nguyen, Mai, and Hoang 1995:33,97).

7. Following Hirschman et al. (1995:797), I "survived" siblings alive at the time of the interview backward one year of age for each calendar year until their birth. Those who died were projected backward in the same fashion from the year of death to the year of birth. I adopted the same procedure for parents, except that the reverse projection stopped at the parents' age at respondent's birth.

8. Many respondents knew of siblings who died in infancy and early childhood, but could not recall their dates of birth or ages at death.

TABLE 1. MORTALITY STATUS OF THE PARENTS AND SIBLINGS OF RESPONDENTS IN THE VIETNAM 1995 LONGITUDI-NAL SURVEY

Year of Birth	Age as of Jan. 1, 1996	Still Alive	Dead	Age at Death Known	Age at Death Unknown	Total (Alive and Dead)	Percentage Surviving
Parents							
≤ 1905	90 and older	29	613	603	10	642	4.52
1906–1915	80–89	331	873	852	21	1,204	27.49
1916–1925	70–79	1,115	717	712	5	1,832	60.86
1926–1935	60–69	1,770	407	405	2	2,177	81.30
1936–1945	50–59	1,165	127	127	0	1,292	90.17
1946–1955	40–49	866	27	27	0	893	96.98
1956–1965	30–39	151	1	1	0	152	99.34
1966–1975	20–29	0	0	0	0	0	
1976–1985	10–19	0	0	0	0	0	
1986–1995	0–9	0	0	0	0	0	
YOB known		5,427	2,765	2,727	38	8,192	66.25
YOB unknown		168	176	40	136	344	48.84
Total		5,595	2,941	2,767	174	8,536	65.55
Siblings							
≤ 1905	90 and older	0	0	0	0	0	0.00
1906–1915	80–89	7	4	4	0	11	63.64
1916–1925	70–79	121	126	117	9	247	48.99
1926–1935	60–69	600	253	220	33	853	70.34
1936–1945	50–59	1,395	351	335	16	1,746	79.90
1946–1955	40–49	3,514	611	586	25	4,125	85.19
1956–1965	30–39	5,833	327	318	9	6,160	94.69
1966–1975	20–29	4,163	138	130	8	4,301	96.79
1976–1985	10–19	1,829	59	57	2	1,888	96.88
1986–1995	0–9	300	3	3	0	303	99.01
YOB known		17,762	1,872	1,770	102	19,634	90.47
YOB unknown		289	359	200	159	648	44.60
Total		18,051	2,231	1,970	261	20,282	89.00
Parents and Siblings							
≤ 1905	90 and older	29	613	603	10	642	4.52
1906–1915	80–89	338	877	856	21	1,215	27.82
1916–1925	70–79	1,236	843	829	14	2,079	59.45
1926–1935	60–69	2,370	660	625	35	3,030	78.22
1936–1945	50–59	2,560	478	462	16	3,038	84.27
1946–1955	40–49	4,380	638	613	25	5,018	87.29
1956–1965	30–39	5,984	328	319	9	6,312	94.80
1966–1975	20–29	4,163	138	130	8	4,301	96.79
1976–1985	10–19	1,829	59	57	2	1,888	96.88
1986–1995	0–9	300	3	3	0	303	99.01
YOB known		23,189	4,637	4,497	140	27,826	83.34
YOB unknown		457	535	240	295	992	46.07
Total		23,646	5,172	4,737	435	28,818	82.05

TABLE 2. REPORTING OF WAR AND NONWAR DEATHS BY AGE AT DEATH AND YEAR OF DEATH OF PARENTS AND SIBLINGS

Year of Death	All Deaths							"Normal" (Nonwar) Deaths							Military Casualties							Civilian Casualties of War						
	0–14	15–29	30–44	45–59	60+	DK Age	Total	0–14	15–29	30–44	45–59	60+	DK Age	Total	0–14	15–29	30–44	45–59	60+	DK Age	Total	0–14	15–29	30–44	45–59	60+	DK Age	Total
Parents																												
≤1954	0	46	159	95	13	0	313	0	33	133	80	12	0	258	0	7	6	2	0	0	15	0	6	20	13	1	0	40
1955-1964	0	8	61	72	52	0	193	0	5	56	68	51	0	180	0	3	1	0	0	0	4	0	0	4	4	1	0	9
1965-1975	0	14	90	140	217	0	461	0	5	59	136	216	0	416	0	9	27	3	0	0	39	0	0	4	1	1	0	6
1976-1985	0	2	33	166	533	0	734	0	2	33	164	531	0	730	0	0	0	2	0	0	2	0	0	0	0	2	0	2
1986-1995	0	0	20	128	878	0	1,026	0	0	20	127	878	0	1,025	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Total known	0	70	363	601	1,693	0	2,727	0	45	301	575	1,688	0	2,609	0	19	34	8	0	0	61	0	6	28	18	5	0	57
Unknown	0	0	2	11	27	174	214	0	0	2	11	27	157	197	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	70	365	612	1,720	174	2,941	0	45	303	586	1,715	157	2,806	0	19	34	8	0	0	61	0	6	28	18	5	0	57
Siblings																												
≤1954	393	70	7	0	0	0	470	381	53	3	0	0	0	437	3	7	4	0	0	0	14	9	10	0	0	0	0	19
1955-1964	187	29	16	1	0	0	233	187	12	10	1	0	0	210	0	14	4	0	0	0	18	0	3	2	0	0	0	5
1965-1975	133	273	58	12	0	0	476	131	39	25	11	0	0	206	0	224	31	1	0	0	256	2	10	2	0	0	0	14
1976-1985	65	109	48	43	14	0	279	65	44	41	41	14	0	205	0	63	5	1	0	0	69	0	2	2	1	0	0	5
1986-1995	16	65	109	63	59	0	312	16	57	106	61	59	0	299	0	8	3	1	0	0	12	0	0	0	1	0	0	1
Total known	794	546	238	119	73	0	1,770	780	205	185	114	73	0	1,357	3	316	47	3	0	0	369	11	25	6	2	0	0	44
Unknown	145	24	13	9	9	261	461	140	8	11	8	9	226	402	0	13	2	1	0	30	46	5	3	0	0	0	5	13
Total	939	570	251	128	82	261	2,231	920	213	196	122	82	226	1,759	3	329	49	4	0	30	415	16	28	6	2	0	5	57
Parents and Siblings Combined																												
≤1954	393	116	166	95	13	0	783	381	86	136	80	12	0	695	3	14	10	2	0	0	29	9	16	20	13	1	0	59
1955-1964	187	37	77	73	52	0	426	187	17	66	69	51	0	390	0	17	5	0	0	0	22	0	3	6	4	1	0	14
1965-1975	133	287	148	152	217	0	937	131	44	84	147	216	0	622	0	233	58	4	0	0	295	2	10	6	1	1	0	20
1976-1985	65	111	81	209	547	0	1,013	65	46	74	205	545	0	935	0	63	5	3	0	0	71	0	2	2	1	2	0	7
1986-1995	16	65	129	191	937	0	1,338	16	57	126	188	937	0	1,324	0	8	3	2	0	0	13	0	0	0	1	0	0	1
Total known	794	616	601	720	1,766	0	4,497	780	250	486	689	1,761	0	3,966	3	335	81	11	0	0	430	11	31	34	20	5	0	101
Unknown	145	24	15	20	36	435	675	140	8	13	19	36	383	599	0	13	2	1	0	30	46	5	3	0	0	0	5	13
Total	939	640	616	740	1,802	435	5,172	920	258	499	708	1,797	383	4,565	3	348	83	12	0	30	476	16	34	34	20	5	5	114

TABLE 3. MALE LIFE TABLES BASED ON ADJUSTED DEATHS OF FATHERS AND BROTHERS OF VLS RESPONDENTS

Probability of Survival ($_nP_x$) Between Ages	Before 1955		1955–1964		1965–1975		1976–1985		1986–1995	
	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level
All Deaths, Including Unknowns, by Age and Year										
15 and 30	0.8682	8.28	0.9602	18.91	0.8434	6.21	0.9658	19.79	0.9767	21.50
30 and 45	0.8094	9.38	0.9244	18.06	0.9035	16.32	0.9642	21.87	0.9603	21.48
45 and 60	0.6993	11.02	0.8684	21.74	0.8910	22.88	0.8793	22.30	0.8995	23.25
60 and 75	—[a]	—[a]	0.5448	20.96	0.5999	22.84	0.5514	21.19	0.5980	22.87
15 and 45	0.7027	8.28	0.8876	18.43	0.7620	11.65	0.9312	21.05	0.9379	21.49
15 and 60	0.4914	9.92	0.7708	20.12	0.6790	16.74	0.8188	21.78	0.8437	22.54
Normal (Nonwar) Deaths, Including Unknowns, by Age and Year										
15 and 30	0.9157	13.12	0.9871	23.19	0.9851	22.82	0.9898	23.77	0.9805	21.98
30 and 45	0.8498	12.06	0.9382	19.33	0.9550	20.99	0.9692	22.37	0.9614	21.57
45 and 60	0.7423	13.42	0.8756	22.15	0.8958	23.11	0.8817	22.44	0.9009	23.34
60 and 75	0.4912	—[a]	0.5480	21.08	0.6042	22.97	0.5528	21.27	0.5980	22.78
15 and 45	0.7781	12.43	0.9260	20.74	0.9408	21.68	0.9593	22.83	0.9426	21.80
15 and 60	0.5776	12.91	0.8108	21.52	0.8428	22.51	0.8458	22.60	0.8492	22.69

[a] Category includes fewer than 500 person-years.

of relative peace in North Vietnam, although there was significant military conflict in the South; (3) the period between 1965 and 1975, extending from escalation of the American war to unification of North and South Vietnam in 1975; (4) the years from 1976 to 1985, when warfare resumed with Vietnam's invasion of Cambodia and the war against China in 1979; and (5) the years from 1986 to 1995, a period of relative peace.

The sample contains a total of 5,172 deaths, as shown in the bottom panel of the table. Parents' deaths are clustered in the middle age ranges; the number of old-age deaths increases in the most recent period, in keeping with the pattern of rising deaths with age shown in Table 1. In contrast, the age composition of siblings is such that deaths are concentrated in childhood and middle age. Altogether we find 480 military deaths and 127 civilian war deaths.[9] When we exclude deaths with an unknown year of death and/or an unknown age at death,[10] the total is 430 military deaths and 101 civilian war deaths. Most military deaths are concentrated between ages 15 and 29, and in the peak years of the American war. Civilian war deaths have a different age distribution than military deaths: More deaths occur below age 15 and above age 44, with a plausible concentration in the period before 1955 and in 1965–1975.

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9. For comparison, the VLHS used by Hirschman et al. counted only 112 military deaths and 43 civilian casualties of war.

10. Deaths with unknown year of death but known age at death are cases of deceased kin with missing year of birth.

MORTALITY ESTIMATES FROM THE 1995 VIETNAM LONGITUDINAL SURVEY AND THE IMPACT OF WAR ON MORTALITY

The quality and the plausibility of the VLS mortality data can be assessed by comparing the estimates with model life tables and with estimates obtained from independent data sources. I computed life tables for the five periods of Vietnamese history: For men, these were based on VLS respondents' fathers and brothers; for women, they were based on their mothers and sisters. To allow the comparison between war and nonwar mortality, I made a distinction between war deaths (both military and civilian) and nonwar deaths. I combined data for siblings and for parents, and examined it in broad age categories to obtain robust estimates.

Tables 3 and 4 present the survival probabilities for men and women based on "adjusted" mortality rates, with mortality levels implied in the West model life table system. This system embodies a modal age pattern of mortality widely observed in European and some Asian populations. Each increase in level corresponds to a gain of about 2.5 years in female life expectancy at birth. These tables present separate estimates of mortality from all causes and mortality from "normal" causes, which exclude deaths associated with war. In general, levels improve over time; the greatest improvement is observed in the postcolonial period. Low implied West mortality levels before 1955 indicate high death rates due to poor living and health conditions in the colonial period, a famine during the winter of 1944–1945, and warfare during the war of independence from France. The large mor-

TABLE 4. FEMALE LIFE TABLES BASED ON ADJUSTED DEATHS OF MOTHERS AND SISTERS OF VLS RESPONDENTS

Probability of Survival ($_nP_x$) Between Ages	Before 1955		1955–1964		1965–1975		1976–1985		1986–1995	
	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level	$_nP_x$	West Mortality Level
All Deaths, Including Unknowns, by Age and Year										
15 and 30	0.9374	15.22	0.9836	21.38	0.9844	21.38	0.9897	22.48	0.9917	22.91
30 and 45	0.9043	15.19	0.9676	21.47	0.9761	22.38	0.9756	22.38	0.9776	22.62
45 and 60	0.8539	17.71	0.9462	24.05	0.9240	22.76	0.9423	23.82	0.9437	23.94
60 and 75	0.6161	—[a]	0.7222	23.55	0.6477	21.40	0.7293	23.73	0.7816	24.90
15 and 45	0.8476	15.26	0.9517	21.40	0.9609	22.01	0.9656	22.40	0.9694	22.63
15 and 60	0.7238	16.26	0.9005	22.87	0.8879	22.44	0.9098	23.24	0.9149	23.43
Normal (Nonwar) Deaths, Including Unknowns, by Age and Year										
15 and 30	0.9414	15.67	0.9862	21.71	0.9894	22.27	0.9914	22.69	0.9918	22.91
30 and 45	0.9146	16.18	0.9689	21.58	0.9785	22.74	0.9756	22.38	0.9776	22.62
45 and 60	0.8636	18.50	0.9463	24.05	0.9258	22.88	0.9430	23.88	0.9443	23.94
60 and 75	0.6161	—[a]	0.7222	23.55	0.6477	21.40	0.7293	23.73	0.7816	24.90
15 and 45	0.8610	15.95	0.9555	21.67	0.9681	22.55	0.9672	22.48	0.9695	22.71
15 and 60	0.7436	17.02	0.9042	23.02	0.8963	22.73	0.9121	23.32	0.9155	23.47

[a]Category includes fewer than 500 person-years.

tality decline after 1955 suggests the success of the Democratic Republic of Vietnam in reducing infectious diseases through aggressive public health campaigns and in developing an extensive network of accessible health care for the great majority of the population (World Bank 1992). The low "normal" mortality in the 1955–1964 period, however, as reflected by high implied mortality levels, also may be present because the fittest disproportionately survived the harsh conditions associated with famine and war in the colonial period.

War mortality is highest in 1965–1975, the period of escalation of the American war, among men (Table 3), especially young men between ages 15 and 29, and to a lesser extent among middle-aged men. Mortality levels implied by the "all deaths" estimates tend to cohere except for those in the peak years of the American war. Exclusion of war deaths improves the coherence of mortality levels associated with various ages. The levels associated with nonwar mortality at young adult ages are usually higher (i.e., indicative of lower death rates) than the levels associated with nonwar mortality at older ages. Warfare was the major cause of death for young men; therefore nonnwar mortality for these age groups is probably understated because those who died from war-related causes were removed from the risk of dying from other causes.

The similarity of implied model life table levels for a particular period is an indication that the age pattern of mortality implied by the data is typical of human populations and thus helps to validate the quality of the data. Yet in addition to being internally valid, are the VLS estimates plausible? To determine their plausibility, I compared them with the 1989 provincial life tables for Ha Nam Ninh Prov-

ince (Vietnam Population Census—1989 1994:118). The 1989 life tables are based on mortality rates from a census question on household deaths in the past year, adjusted for incompleteness of death reporting. It has been noted elsewhere that the 1989 life tables may underestimate survival probabilities because of the inappropriateness of the method used to adjust mortality rates for incompleteness of death reporting (Hirschman et al. 1995:801–802).

The estimates from the two sources matched rather closely. VLS estimates for men in 1986–1995 shown in Table 3 were within one level of 1989 census estimates except for ages 15–29, where the difference was about two levels. For women, the difference was greater: The model life table levels implied by the VLS estimates in Table 4 were about 1.5 to 2 levels higher than those implied by census estimates. Although female mortality in the VLS may be slightly understated,[11] the downward bias in 1989 life table survival probabilities is probably responsible for much of this difference. In sum, given the potential measurement problem in the two data sources, mortality estimates implied by questions on kin survival are quite consistent with those from an independent data source.

Because of their internal and external validity, VLS mortality data can be used to assess the impact of wars on mortality. The first two panels of Table 5 show male and female age-specific mortality rates based on all deaths and on nonwar deaths. Their ratios, displayed in the bottom panel, allow one to assess the impact of war on mortality for each of the historical periods. This table makes clear that the risk

11. Greater underreporting of female deaths than of male deaths was also found in Vietnam's 1979 and 1989 censuses (Merli 1998).

TABLE 5. ADJUSTED DEATH RATES FOR PARENTS AND SIBLINGS, BY SEX

Age	Males						Females					
	Pre-1955	1955–1964	1965–1975	1976–1985	1986–1995	Total	Pre-1955	1955–1964	1965–1975	1976–1985	1986–1995	Total
Death Rates Based on All Deaths												
15–29	9.18	2.54	10.67	2.38	1.65	4.56	4.27	1.12	1.08	0.68	0.58	1.08
30–44	14.07	5.18	6.69	2.30	2.45	4.62	6.62	2.19	1.62	1.64	1.45	2.05
45–59	23.56	9.27	7.22	8.36	6.89	8.60	11.20	3.41	4.99	3.86	3.79	4.34
60+	51.75	37.92	32.07	40.54	38.71	38.36	32.78	16.62	21.52	23.73	22.12	22.45
Total	11.37	4.94	6.98	6.16	7.89	7.20	6.87	2.74	2.65	3.42	4.80	3.87
Death Rates Based on Normal (Nonwar) Deaths												
15–29	5.79	0.85	1.05	0.68	1.37	1.36	3.98	0.93	0.72	0.57	0.57	0.91
30–44	10.82	4.17	3.12	1.93	2.36	3.39	5.93	2.11	1.46	1.63	1.45	1.95
45–59	19.30	8.58	6.84	8.17	6.78	8.11	10.20	3.41	4.82	3.80	3.75	4.23
60+	48.71	37.07	31.80	40.31	38.71	38.17	32.78	16.62	21.52	23.73	22.12	22.45
Total	9.70	4.35	3.88	5.44	7.76	5.97	6.54	2.68	2.47	3.36	4.79	3.77
Ratio of All Deaths to Nonwar Deaths												
15–29	1.59	2.99	10.16	3.48	1.20	3.34	1.07	1.20	1.51	1.19	1.01	1.18
30–44	1.30	1.24	2.14	1.20	1.04	1.36	1.12	1.04	1.11	1.00	1.00	1.05
45–59	1.22	1.08	1.05	1.02	1.02	1.06	1.10	1.00	1.04	1.01	1.01	1.03
60+	1.06	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	1.17	1.13	1.80	1.13	1.02	1.21	1.05	1.02	1.07	1.02	1.00	1.03

of death from war causes mainly affected young men age 15–29, especially in the peak years of the American war. This was also true to a lesser extent in the 1955–1964 period and during the first 10 years of postwar unification, characterized by Vietnam's hostilities with its neighbors. The death rate for men age 15–29 in 1965–1975 is more than 10 times their death rate in the absence of war. The risk of dying from war-related causes for men over 30 is much lower than for the younger age group.

In relation to men, women's survival chances were not diminished greatly by war. Among young women, the risk of death during the American war was only 50% higher than in the absence of war. In fact, women contributed to the war effort by joining local militia units and self-defense forces, and (most important) by replacing men in local political and administrative positions (Turley 1980:186–87) and entering the rural labor force en masse.

THE EFFECTS OF DIFFERENCES IN SOCIOECONOMIC BACKGROUND ON WAR MORTALITY

I chose father's education as the primary indicator of socioeconomic background. Although the VLS data set is rich in socioeconomic background indicators—respondents were asked about their place of birth, and their father's education, occupation, and party membership while the respondents were growing up—father's education is related to other such indicators (Table 6). The odds of father's nonagricultural oc-

cupation, father's party membership, and urban residence (approximated by respondent's place of birth), excluding missing information on any of these variables, are respectively 4 times ($73.1 \times 52.5/44.5 \times 21.7 = 4.0$), 4.1 times, and 3 times higher among the better-educated fathers (6+ completed grades).

In addition to capturing socioeconomic background accurately, paternal education has the following advantages over other typical indicators of socioeconomic background. First, as in traditional times, education in twentieth-century Vietnam has been highly valued not only because of knowledge for its own sake, but also because of the social advantage and prestige it brings. The majority of fathers of VLS respondents reached school age before 1945, during the French colonial period. At that time only a small number of selected Vietnamese, mostly from wealthier socioeconomic groups, entered the government education system, which maintained a French curriculum, or the nongovernmental village schools, which maintained a traditional educational system. During the colonial period, the majority of the population was illiterate or had only a primary school education. Secondary education was very rare: Only 10 secondary schools had been established in the entire country (Anh et al. 1996). Eighty-two percent of fathers of VLS respondents were born before 1940; 82% of these had primary schooling or less. In contrast, 73% of fathers born after 1940 attained more than primary school level, mostly lower secondary school (grades 6 to 9).

TABLE 6. PERCENTAGE DISTRIBUTION OF PATERNAL OCCUPATION, FATHER'S PARTY MEMBERSHIP, AND RESPONDENT'S PLACE OF BIRTH, BY FATHER'S EDUCATION: VLS

| | Father's Education, Grades Completed | | |
	0–5	6+	Total
N	(3,057)	(1,211)	(4,268)
Father's Occupation			
Agricultural	73.1	44.5	64.9
Nonagricultural	21.7	52.5	30.5
DK	5.2	3.0	4.6
Total	100.0	100.0	100.0
Father Party Member?			
Yes	15.7	43.5	23.6
No	81.6	54.7	73.9
DK	2.7	1.8	2.5
Total	100.0	100.0	100.0
Respondent's Place of Birth			
Urban	6.8	18.1	10.0
Rural	93.0	81.8	89.8
DK	0.2	0.2	0.2
Total	100.0	100.0[a]	100.0

[a]Actual total is 100.1; does not sum to 100.0 because of rounding.

Second, educational attainment tends to be stable by young adulthood, whereas occupation, party membership, and residence, addressed by the other VLS questions on socioeconomic background, may have changed in response to wartime conditions. The values of socioeconomic background variables obtained from information provided by respondents are assigned to respondents' siblings who died of military causes, as well as to the person-years of exposure lived by all dead and living siblings. I chose paternal education as the primary indicator of socioeconomic background of VLS respondents and their siblings because it is expected to be fixed by the time of the first child's birth.

The total number of war-related deaths displayed in Table 2 (607 military and civilian war deaths from the combined sample of parents and siblings) was the source of the adjusted death rates for the analysis of war and nonwar mortality patterns and trends in the first part of this paper. The analysis of paternal educational differentials in war mortality, however, is restricted to a subsample of deaths with the following exclusions: (1) 76 cases of war-related deaths with missing information on year of death and/or age at death. This exclusion restricts the analysis of war mortality differentials by father's education to unadjusted death rates—that is, death rates estimated from no missing-data cases—on the assumption that data are randomly missing across father's educational categories;[12] (2) 101 civilian war deaths, because

paternal education is not thought to affect mortality associated with bombing in the same way as it affects mortality of army conscripts and of those who served in a local militia; (3) 61 military deaths of parents, because information on parents' education but not on the education of parents' parents would not yield a standard measure of socioeconomic background for siblings and for parents; (4) 13 military deaths of sisters, corresponding to 2.4% of the sample of siblings' military deaths, because an analysis of deaths by gender would leave most cells empty; (5) two cases of military deaths of brothers who reportedly died in childhood, an impossible proposition.

The numerator for the death rates is provided by a total count of 354 military deaths of brothers of respondents with known age at death and year of death who died at age 15 or older. The denominator is provided by 181,802 person-years of exposure of living and dead brothers with no missing information on age at death and/or year of death.

I examined sons' war mortality differentials by their father's education across two broad paternal education categories: 0–5 completed grades, corresponding to illiteracy and primary school, and 6+ completed grades, corresponding to lower secondary school (grades 6–9), upper secondary school (grades 10–12), and college. I set the cut-off point at five grades of schooling on the basis of the meaningful distinction between primary and secondary school with respect to socioeconomic background, meaningful junctures in the prevailing educational systems,[13] and sample size considerations (broader educational categories increase the size of cells).

The lower paternal education category includes 21.4% of respondents whose fathers were illiterate or had no formal schooling, 31.1% with fathers with completed or some primary schooling, and 19.5% who did not know their fathers' educational attainment.[14] The higher education category includes 21.4% and 4.2% of respondents with fathers with completed or some lower secondary schooling and with completed or some upper secondary schooling, and 2.8% of re-

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12. This assumption would be threatened by a different ratio of missing-data deaths to missing-data surviving kin among educational cat-

egories. For example, mortality estimates for one paternal education category would be biased downward by the omission of more missing-data deaths relative to missing-data surviving kin than for another educational category. Yet this ratio is the same across educational categories: It equals 0.33. The use of unadjusted death rates therefore is justified and is not likely to confound the results of the analysis of war mortality by paternal education.

13. Although the majority of fathers of VLS respondents attended school in the colonial period, a smaller proportion attended school during the period of the Resistance government from 1945 to 1954. A very small number attended during the period of the officially sanctioned Democratic Republic of Vietnam. To minimize complications arising from dealing with three different educational systems, which mainly affected the number of grades at each level of schooling, the VLS questionnaire asked respondents both about grades of schooling and the system to which the grade referred. The survey staff then converted the stated grade to its equivalent in the current 12-grade primary and secondary school system.

14. Fathers with missing information on education are older. The median birth year for fathers of respondents who did not provide information on paternal education is 1921, compared with 1928 for fathers of respondents who provided it. Furthermore, educational attainment improves for younger

TABLE 7. MILITARY DEATHS, PERSON-YEARS, AND DEATH RATES OF BROTHERS BY AGE, PERIOD OF DEATH, AND FATHER'S EDUCATIONAL ATTAINMENT, < 1955–1995: VLS

Father's Education in Grades	< 1955		1955–1964		1965–1975		1976–1985		1986–1995		Total	
	0–5	6+	0–5	6+	0–5	6+	0–5	6+	0–5	6+	0–5	6+
Military Deaths												
Age 15–24	4	0	10	0	131	40	40	5	3	1	188	46
Age 25+	6	1	8	0	66	10	18	4	5	2	103	17
Total	10	1	18	0	197	50	58	9	8	3	291	63
Person-Years												
Age 15–24	4,165	267	6,906	769	17,066	3,091	21,844	6,097	13,185	6,348	63,166	16,572
Age 25+	1,065	26	3,754	248	11,510	1,108	25,274	3,663	45,827	9,589	87,430	14,634
Total	5,230	293	10,660	1,017	28,576	4,199	47,118	9,760	59,012	15,937	150,596	31,206
Death Rates (per 1,000)												
Age 15–24	0.96	0.00	1.45	0.00	**7.68**	**12.94***	**1.83***	**0.82**	0.23	0.16	2.98	2.78
	(0.48)	(0.00)	(0.46)	(0.00)	(0.67)	(2.05)	(0.29)	(0.37)	(0.13)	(0.16)	(0.22)	(0.41)
Age 25+	5.63	38.46	2.13	0.00	5.73	9.03	0.71	1.09	0.11	0.21	1.18	1.16
	(2.30)	(38.46)	(0.75)	(0.00)	(0.71)	(2.85)	(0.17)	(0.55)	(0.05)	(0.15)	(0.12)	(0.28)
Total	1.91	3.41	1.69	0.00	**6.89**	**11.91****	1.23	0.92	0.14	0.19	1.93	2.02
	(0.60)	(3.41)	(0.40)	(0.00)	(0.49)	(1.68)	(0.16)	(0.31)	(0.05)	(0.11)	(0.11)	(0.25)

Notes: Standard errors of the estimates are in parentheses. Mortality estimates in bold indicate that the paternal education mortality differences are statistically significant.

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

spondents with fathers who had more than secondary education. In sum, of 4,268 respondents, 71.6% have fathers who had completed primary school or less, and 28.4% have fathers with lower secondary schooling or more.

I grouped age in two categories, 15–24 and 25+, to distinguish the initiation and the length of exposure to war mortality across the successive historical periods. In fact, the draft age was set at ages 18–25 during periods before and after the American war (Fitzgerald 1989), but with the escalation of the war it was expanded to ages 16–45, and the tour of duty was extended from 2–4 years to an indefinite period (Smith et al. 1967:409–10).

Table 7 presents the number of military deaths, person-years of exposure, and estimates of military death rates, specific to age, period, and paternal education, of brothers of VLS respondents, with the associated standard errors.[15] As shown earlier, war mortality is highest during the American

war, between 1965 and 1975. Mortality is concentrated between ages 15 and 24; death rates above age 25 are lower. The most notable finding in this table, however, is the marked paternal education differential in war mortality in the youngest age group during the American war as well as in the postwar period. During the American war, the death rate for sons of fathers with 6+ grades of education is 68% higher than that for sons of fathers with no education or a primary school education. This difference is significant at $p < 0.05$.[16] Conversely, during the postwar unification period, the death rate for sons of better-educated fathers is half the rate for sons of illiterate fathers and those with primary school education; this difference is significant at $p < 0.05$.[17]

Although father's education is related to other status indicators (Table 6), I find no similar differentials in mortality

cohorts of fathers: The average number of grades completed by respondents' fathers is 1.5 for fathers born before 1900, 3.59 for those born between 1920 and 1929, and 8.27 for those born after 1950. This trend suggests a relationship between missing information on paternal education and fathers' lower educational attainment, which justifies the inclusion of cases with missing information on paternal education in the lower education category.

15. Variance estimates are based on the following formula: $\hat{m}_i / A_i$; where $\hat{m}_i$ is the estimated death rate and A_i is the aggregate exposure time, under the assumption that the death rate remains time-invariant during the observation period and is shared by all segments of the ith stratum (Namboodiri 1991:65).

16. Tests determining whether paternal educational differentials in mortality are statistically significant are based on the following formula: $(DR_{0-5} - DR_{6+}) / (var_{0-5} + var_{6+})^{1/2}$.

17. To test whether these results are sensitive to the way in which education is categorized, I reanalyzed the data using a finer grouping of paternal education, illiteracy, primary education, and secondary education (results not shown). In the American war period, although death rates for sons of illiterate fathers were slightly lower than those for sons of fathers with primary education, they did not differ significantly in any of the age-period categories examined. Conversely, this analysis confirmed that mortality was significantly higher among sons of fathers with 6+ completed grades than among sons of fathers with primary school education.

among these alternative indicators. In the crucial 1965–1975 period, for example, mortality rates differed by father's educational status by about 5 per 1,000, with a relative mortality ratio close to 2. In contrast, excess mortality for sons of nonagricultural workers, party members, and for rural residents (approximated by brothers' place of birth) is respectively 1.1 per 1,000, 1.8 per 1,000, and 0.6 per 1,000. None of these differences approach statistical significance (see Appendix Table A1).[18]

Did sons of better-educated fathers face higher mortality during the American war because of social selection in military and combat roles? Or was the inequitable risk of death determined by an inequity in the pathways into the army? These questions can be answered by comparing the findings of the mortality analysis with the proportion who ever served in the military by father's education; this information was obtained from VLS respondents' answers to a question about their own military experience.

From the sample of 1,992 male respondents (46.7% of a total of 4,268), I grouped respondents' years of birth in three broad categories to represent the cohorts who were at risk of being drafted during the war of independence from France, the American war, and the period after 1975, during Vietnam's military conflict with its neighbors. Respondents born between 1930 and 1939 were age 15 in 1945–1954,[19] those born between 1940 and 1954 were 15 in 1955–1969, and those born between 1955 and 1995 include respondents of prime draft age in 1979.

Table 8 shows the percentage who ever served in the army by father's education and birth cohort. The numbers in parentheses represent the distribution of respondents by birth cohort. The bottom panel shows likelihood-ratio chi-square statistics (L^2) with the associated p value and degrees of freedom: that is, the results of tests of independence performed on the null hypothesis that for each birth cohort there is no difference in paternal education with respect to military service.

The marginal row of the table shows that those born between 1940 and 1954 are most likely to have ever served in the military. Mass mobilization for the American war resulted in increased conscription of young men. The marginal column suggests that sons of less highly educated fathers joined the military in greater numbers than sons of better-educated fathers. Of the cohorts at risk of being drafted during the war of independence from France (1930–1939 cohorts), the proportion who actually served in the military does not differ significantly by father's educational level ($L^2(df) = 0.0007(1)$, $p = 0.979$).

For the more recent cohorts, however, paternal education makes a difference: Among cohorts born between 1940 and 1954, who were of draft age during the American war

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18. During the American war, paternal education mortality differentials are stronger for sons of peasants, sons of party members, and rural residents (Appendix Table A1).

19. I chose age 15 as the initiation to the risk of being drafted during both the war of independence from France and the American war.

TABLE 8. PERCENTAGE EVER SERVED IN THE MILITARY BY BIRTH COHORT AND PATERNAL EDUCATION, VLS MALE RESPONDENTS

	Birth Cohorts			
	1930–1939	1940–1954	1955–1981	Total
Grades 0–5	43.41	65.78	56.40	57.96
	(182)	(491)	(766)	
Grades 6+	43.75	80.65	31.16	37.07
	(16)	(62)	(475)	
Total	43.43	67.45	43.74	52.16
$L^2(df)$	0.0007 (1)	6.0065 (1)	76.4312 (1)	70.2859(1)
p Value	0.979	0.014	0.000	0.000

Note: $N = 1,992$.

period, the proportion of sons of better-educated fathers who ever served in the military is significantly greater than the proportion of sons of less highly educated fathers: 81% of sons of fathers who completed 6+ grades enlisted in the army, compared with 66% of sons of fathers with no education or with five or fewer completed grades of schooling ($L^2(df) = 6.01(1)$, $p = 0.01$). Conversely, in the cohorts of draft age in the postwar unification period, sons of fathers with 0–5 grades of schooling were more likely to have ever served in the army than sons of better-educated fathers ($L^2(df) = 76.43(1)$, $p < 0.001$).

Because I did not assign respondents to the historical period on the basis of year when they joined the army, one cannot be certain whether military service actually began during the period of interest. Yet these results suggest that the inequality in war mortality was a direct consequence of the inequity of the routes into the army, and that the military burden during the peak years of the American war was borne disproportionately by the sons of the better educated. These men were more likely to serve in the army and to see frontline duty and die in combat than were sons of less highly educated fathers. Conversely, the burden of war in a unified Vietnam was borne by the sons of less highly educated fathers, who experienced greater military participation and faced diminished survival chances in combat.

DISCUSSION AND CONCLUSIONS

The relationship between war and social structure and the determinants of men's paths into battle have received a great deal of attention from U.S. social scientists interested in the impact of the Vietnam war on American society. These investigations have been motivated by social scientists' response to the personal and political anguish that followed the war, as well as by a shared belief, resting on the premises of a liberal state (Modell and Haggerty 1991:209), that war ought to temporarily efface many of the social distinctions of society. On the other hand, the ramifications of this war for Vietnamese society are absent from the public discourse, where the social science literature on the social impact of the war originates. Not only are appropriate empirical data

absent; in addition, the Vietnam conflict is identified as exclusively American.

In the present study I used data obtained from retrospective information on kin survival and on other socioeconomic characteristics, provided by VLS respondents, to examine the effect of socioeconomic background characteristics on survival in the American war in one province of the Red River Delta of Vietnam. The data allowed me to consider each of the wars that have marked the past 50 years of Vietnamese history and to compare the American conflict and its impact on Vietnamese society with earlier and later conflicts.

The findings of this analysis suggest that paternal education, an indicator that captures socioeconomic background accurately, has a substantial effect on war mortality. Sons of fathers with secondary education (6+ grades) bore the burden of the American war disproportionately in relation to sons of illiterate fathers and those with only a primary school education (0–5 grades). In sharp contrast, during the postwar unification period characterized by Vietnam's invasion of Cambodia and by the Sino-Vietnamese war, sons of less highly educated fathers died at a higher rate than sons of fathers with six or more completed grades of schooling. Although paternal education is related to other socioeconomic indicators, it is the only variable to affect mortality. When socioeconomic background is examined by other measures, no consistent relationship with mortality is found. Further scrutiny of the data indicates that paternal educational differentials in mortality during the American conflict are stronger among sons of peasants, sons of party members, and rural residents.

The findings of paternal educational differentials in mortality are supported by evidence provided by VLS survey respondents about their own military experience. During the American war, the proportion of military enrollees of draft age was higher among young men born to better-educated fathers; in the period following the war, those born to less highly educated fathers were more likely to join the military. This finding suggests that inequality in war mortality was a direct consequence of the inequity of routes leading North Vietnamese men into the army.

Although these findings are identified in only one province of North Vietnam, and although it is not clear that similar patterns would be found in other provinces, the contrast between the American war and the postwar period can be explained by characterizing the former period as a time of mobilization of society for the war, and the postwar unification period as a time of "normal" military operations. In the peak years of the American war, especially after the United States launched the first air attacks on North Vietnam in late 1964, the North Vietnamese government portrayed war as an effort of the whole society. To cope with the absolute emergency, the government promoted the total reorganization of the society and the economy. War engendered a new sense of status: Joining the army was considered prestigious. In the absence of competing opportunities, individuals, regardless of their social stratum, may have viewed the army as a locus of social mobility. Only in cit-

ies, young men of higher socioeconomic status may have had greater opportunities to avoid risky military service, as suggested by the weaker paternal education differential in mortality among sons of nonagricultural fathers and urban residents.

The American war was portrayed at the time as a struggle for national salvation and unification, a struggle left unresolved since the war of independence against the French. The call to arms in the name of this struggle, of which the Communist Party became the utmost proponent, may have appealed especially to the more highly educated, for these groups historically have been early supporters of ideologies of national salvation.[20] During the American war, Communist Party membership of better-educated fathers, rather than proving important in protecting their sons from risky military service, may have nurtured a stronger ideological commitment to join in this struggle.

With demobilization and the normalization of society after unification of North and South Vietnam, the People's Army of Vietnam became a more conventional modern army with a new role. Its mission shifted from uniting the country and defending the North from U.S. air raids to engaging in a border war with China and prosecuting a protracted counterinsurgency war in Cambodia; both wars were highly unpopular among the Vietnamese people (Thayer 1987). These changes influenced the structure of the Vietnamese army and its recruitment strategies, as well as the individual motivations of those who enlisted. Draft evasion became a more widespread phenomenon, as individuals with political and financial means sought protection from the draft more effectively than their less advantaged peers (Thayer 1987). Whatever idealistic, patriotic attitudes had existed among youths who joined the army during the American war and in earlier periods, PAV soldiers after 1975, mostly between ages 18 and 25, wanted to fulfill their active duty obligation quickly and return home (Fitzgerald 1989:71).

The Vietnamese experience during the American war testifies to the ability of a nation in wartime to temporarily reorder society and to persuade higher-status groups to contribute fully to the war effort. Such groups, in the absence of war, would be more likely than their lower-status compatriots to shun military service. An appreciation of the meaning of this social reshuffling during the American war is critical for understanding the war, Vietnam, and that country's political outlook.

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20. National revolutions across east and southeast Asia have relied initially on multiclass alliances and have found their first enthusiastic supporters among the better-educated groups. This was the case in the wake of the republican and the Communist revolutions in China in the first half of the twentieth century, and in Vietnam with the Viet Minh movement and the struggle of independence from France (Duiker 1995:181).

APPENDIX TABLE A1. PATERNAL EDUCATION DIFFERENTIALS IN MORTALITY BY FATHER'S OCCUPATION, FATHER'S PARTY MEMBERSHIP, AND BROTHERS' PLACE OF BIRTH, <1955–1995: VLS

Father's Education in Grades	<1955			1955–1964			1965–1975			1976–1985			1986–1995			Total		
	0–5	6+	Total	0–5	6+	Total	0–5	6+	Total	0–5	6+	Total	0–5	6+	Total	0–5	6+	Total
Father's Occupation																		
Agricultural	1.90 (0.67)	0.00 (0.00)	1.85 (0.66)	1.93 (0.48)	0.00 (0.00)	1.82 (0.45)	**6.75** (0.55)	**13.33*** (2.61)	7.28 (0.55)	1.31 (0.19)	0.93 (0.47)	1.27 (0.18)	0.13 (0.05)	0.14 (0.14)	0.13 (0.05)	1.96 (0.13)	2.20 (0.39)	1.99 (0.12)
Nonagricultural	2.64 (1.87)	5.59 (5.59)	3.20 (1.85)	0.52 (0.52)	0.00 (0.00)	0.42 (0.42)	7.31 (1.16)	11.32 (2.31)	8.43 (1.05)	1.01 (0.32)	0.96 (0.43)	0.99 (0.26)	0.16 (0.11)	0.24 (0.17)	0.19 (0.09)	1.79 (0.24)	1.96 (0.35)	1.85 (0.20)
DK	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	2.10 (2.10)	0.00 (0.00)	2.02 (2.02)	7.75 (2.74)	0.00 (0.00)	6.90 (2.44)	0.71 (0.71)	0.00 (0.00)	0.60 (0.60)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	2.08 (0.66)	0.00 (0.00)	1.80 (0.57)
Total	1.91 (0.60)	3.41 (3.41)	1.99 (0.60)	1.69 (0.40)	0.00 (0.00)	1.54 (0.36)	**6.89** (0.49)	**11.91**** (1.68)	7.54 (0.48)	1.23 (0.16)	0.92 (0.31)	1.18 (0.14)	0.14 (0.05)	0.19 (0.11)	0.15 (0.04)	1.93 (0.11)	2.02 (0.25)	1.95 (0.10)
Father Party Member?																		
Yes	2.82 (2.82)	0.00 (0.00)	2.50 (2.50)	1.88 (1.33)	0.00 (0.00)	1.48 (1.05)	**6.89** (1.33)	**13.82*** (2.76)	9.08 (1.26)	1.07 (0.38)	0.88 (0.44)	1.00 (0.29)	0.21 (0.15)	0.28 (0.20)	0.24 (0.12)	1.78 (0.28)	2.23 (0.40)	1.95 (0.23)
No	1.70 (0.60)	4.12 (4.12)	1.82 (0.61)	1.72 (0.43)	0.00 (0.00)	1.60 (0.40)	6.92 (0.54)	10.49 (2.14)	7.23 (0.52)	1.27 (0.18)	0.99 (0.44)	1.24 (0.17)	0.13 (0.05)	0.12 (0.12)	0.12 (0.05)	1.97 (0.13)	1.85 (0.33)	1.96 (0.12)
DK	5.95 (5.95)	0.00 (0.00)	5.78 (5.78)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	5.99 (2.99)	9.80 (9.80)	6.49 (2.90)	0.86 (0.86)	0.00 (0.00)	0.76 (0.76)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	1.62 (0.66)	1.73 (1.73)	1.63 (0.62)
Total	1.91 (0.60)	3.41 (3.41)	1.99 (0.60)	1.69 (0.40)	0.00 (0.00)	1.54 (0.36)	**6.89** (0.49)	**11.91**** (1.68)	7.54 (0.48)	1.23 (0.16)	0.92 (0.31)	1.18 (0.14)	0.14 (0.05)	0.19 (0.11)	0.15 (0.04)	1.93 (0.11)	2.02 (0.25)	1.95 (0.10)
Brothers' Place of Birth																		
Urban	4.90 (3.47)	0.00 (0.00)	4.49 (3.18)	1.17 (1.17)	0.00 (0.00)	1.05 (1.05)	6.52 (1.74)	8.73 (3.90)	6.98 (1.60)	2.03 (0.77)	1.26 (0.89)	1.79 (0.60)	0.25 (0.25)	0.40 (0.40)	0.30 (0.22)	2.29 (0.46)	1.67 (0.59)	2.10 (0.37)
Rural	1.67 (0.59)	4.00 (4.00)	1.79 (0.60)	1.75 (0.42)	0.00 (0.00)	1.61 (0.39)	**6.96** (0.51)	**12.31**** (1.86)	7.60 (0.50)	1.17 (0.16)	0.86 (0.33)	1.12 (0.15)	0.13 (0.05)	0.15 (0.11)	0.13 (0.04)	1.91 (0.12)	2.06 (0.28)	1.94 (0.11)
DK	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	18.87 (18.87)	5.26 (5.26)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	4.12 (4.12)	1.28 (1.28)
Total	1.91 (0.60)	3.41 (3.41)	1.99 (0.60)	1.69 (0.40)	0.00 (0.00)	1.54 (0.36)	**6.89** (0.49)	**11.91**** (1.68)	7.54 (0.48)	1.23 (0.16)	0.92 (0.31)	1.18 (0.14)	0.14 (0.05)	0.19 (0.11)	0.15 (0.04)	1.93 (0.11)	2.02 (0.25)	1.95 (0.10)

Notes: Standard errors of the estimates are in parentheses. Mortality estimates in bold indicate that the paternal education mortality differences are statistically significant.

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

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