Predictors of Displacement Behaviour during the 2006 Lebanon War

Marwan Khawaja, Shireen Assaf, Rouham Yamout

Center for Research on Population and Health

Faculty of Health Sciences

American University of Beirut

Beirut, Lebanon

Correspondence to: Marwan.khawaja@gmail.com

Abstract

The 2006 Israeli-Lebanese war was one of the shortest, and yet perhaps the worst in the history of Lebanon. In the course of 33 days, the war has resulted in over 1000 deaths, thousands of bodily injuries, large scale destruction of infrastructure and properties and massive population displacements. About a third of Lebanese were displaced during the war, but most of them were able to return to their original places of residence immediately after the war ended. Most of the displaced stayed with family/friends or secondary homes, but those originating from damaged areas stayed in temporary shelters set up mainly in schools. We use population-based survey data collected in early 2007 and logistic regression models to examine the effects of some demographic and socioeconomic factors on displacement, stratified by war affected and non-affected areas. Our sample is restricted to adults aged 18 years or older. We find that region of residence was understandably the most important variable in predicting war displacement. Younger age, being married, and higher education also had higher odds of displacement compared to others. Females and Lebanese nationality had higher odds of displacement than their male and non-Lebanese counterparts, but only in war-damaged areas. Interestingly, household composition and size, economic standing and possession of a car were not related to the odds of displacement. Findings from the present study may help policy makers and humanitarian agencies in their planning efforts during emergencies, including wars.

Introduction

The Midde East region is known for having the largest number of refugees and internally-displaced people. In the course of the 20th century, several states in the region generated massive waves of refugees as a result of inter-state conflicts, large-scale development project, forced settlement of nomads, ethnically motivated forced-migration, and internal civil wars (Peteet 2007). Wars have been the major producers of refugees in the region, with several million Palestinian refugees and displaced as the result of the creation of Israel in 1948, and subsequent 1976 Arab-Israeli war and the 1991 Gulf war. The Iraqi state campaigns against the Kurds and other ethnic minorities in the course of the Iraqi-Iran war produced hundreds of thousands of displaced people. More recently, the 2003 invasion of Iraq and subsequent ethnic violence resulted in massive population displacements within Iraq and across the border to Jordan and Syria, amounting to over 4 million refugees. The civil war in Lebanon during the 1976-1990 period and Israeli invasions resulted in nearly one million internally displaced persons (Assaf and El-Fil, 2003??).

The recent 2006 Israeli-Lebanese (or rather Hisbolla) war caused another wave of forced population displacements in Lebanon. The war broke out on the night of 13 July 2006 in response to a kidnapping of two Israeli soldiers by Hisballa militants on the Southern borders for the purpose of exchanging the soldiers with Lebanese and Palestinian prisoners in Israeli jails. This military operation occurred after some years of relative quite on the borders. Although there were some occupational skirmishes, the security situation was effectively monitored by UNIFIL (United Nations Interim Force in Lebanon) after Israel unilaterally ended its 18-years occupation of South Lebanon in 2000 (UNSC 2006). The decision by Israel to wage a large-scale war in retaliation to the kidnapping operation by Hisbolla came as a surprise to all parties concerned, including Israelis and Lebanese parties.

Although relatively short, lasting for 33 days, the 2006 Lebanon war was rather lethal, and resulted in massive damage of personal property and infrastructure. The land and air offensive waged by Israel targeting mainly Hezbollah positions and Shiite communities in the South , Lebanese infrastructure including Lebanon's only airport, many roads and bridges, fuel depots and petrol stations, and the two main roads to Damascus, Syria (HRC 2006). An effective air and sea blockade that lasted well after the cease fire was also imposed. During the war, around 1,200 Lebanese civilian were killed and an estimated 4,000 injured (HRC, 2006). In Israel, 44 were killed by rocket attacks and about 2,000 civilians were injured (Shenhar et al., 2008).

The war has also resulted in a massive population displacement, and within days an estimated one million Lebanese fled their homes to seek refuge within the country and abroad, mainly in neighboring Syria. In Israel an estimated 300,000 Israelis mainly those living in North Israel were displaced as well (Gilead et al. 2008). In Lebanon, an estimated 735,000 individuals were displaced within Lebanon and about 230,000 fled to other countries, including neighboring

Syria, Cyprus, Jordan, and beyond (IDMC 2006). Figures include the secondary displacement of approximately 16,000 Palestinian refugees (COI 2006). Of those displaced within Lebanon, approximately 135,000 sought public shelters in schools and other premises away from bombing areas, and the rest (about 600,000) stayed with host relatives and friends, or in their secondary homes (UN OCHA, 2006). Within hours of the cessation of hostilities, most of the displaced populations were returning in large numbers to their communities of origin in the South and elsewhere.

The purpose of this study is to explore some demographic and socio-economic predictors of displacement behavior in the course of the 2006 Lebanon war. The study relies on unique nationally-representative survey data collected about six months after the war. The data included a wide range of questions relating to the affects of war on living conditions, health, migration intentions and damage of personal property in Lebanon. Drawing on previous studies on displacement and evacuation behaviors, we explore the effects of conflict intensity as indexed by area of residence, demographic and family composition, and economic background on displacement behavior among adults. It is hoped that findings from our study may inform policies and programs designed to protect and serve displaced civilian populations during humanitarian emergencies.

Methodology

Data source

We used the post war living conditions survey in Lebanon which was conducted between January and March of 2007 by the Central Administration of Statistics in cooperation with the Ministry of Social Affairs and UNDP. The survey was based on a nationally representative sample of 7,571 occupied housing units, selected using a stratified, two stage design with probabilities proportional to size. The sample was stratified by governorate, but separating the districts which were heavily affected (damaged) by the war from those not damaged in certain governorates. Thus, the Dahieh (suburb) of Beirut was treated separately from the Mount Lebanon governorate, and Majryioun, Bint Jbail, Nabatieh and Tyre were treated separately from the non-affected districts in the governorates of Nabatieh and South Lebanon. The sample was drawn from a sampling frame of housing units constructed by CAS in 2004-2005. In the first stage of sample selection, a random sample of 135 primary sampling units (PSUs) was selected from each region (governorate), except the war affected regions where 181 PSUs were selected. In the second stage, a total of 8 housing units were selected from each PSU. The data were collected by face to face interviews with heads of households or any other adult present during home visits. The data were generally of good quality, with an overall response rate of 88.3%. Non response consisted mainly of refusals and no contacts during home visits.

Following previous research on displacement and migration 'decision-making', the sample was restricted to adults aged 18 years and above at the time of survey. In addition, civilian respondents who were out of the country during the war were excluded from the analysis.

Measures

The dependent variable used in the analysis was displacement status, measured by a direct question on whether the respondent decided to leave home (displaced) or to stay (non-displaced) at his/her usual place of residence during the war. For those displaced, area of destination and the choice of accommodation (temporary shelter, private house belonging to relatives/friends or hotel) was also analyzed. Following literature review and taking the context into account, several demographic and socio-economic independent variables were used in the analysis including, age, sex, marital status, education level, labor force participation, household income level, possession of car, household type, household size, nationality and the region of origin.

Age was recoded into mainly ten-year age categories with the exception of the youngest and oldest age groups (18-29, 30-39, 40-49, 50-59, 60+). Household size was recoded into the following five categories: 1-3, 4, 5, 6, 7-10. The household type variable was created from relation to household head and age of respondent, and included loner households, nuclear family with no children under 15 years, nuclear family with children under 15 years, extended family with no children under 15 and extended family with children under 15 years. Martial status included three categories, never married, currently married, and previously married; thus, the widowed, divorced and separated where combined together in previously married owing to their low frequencies. Educational level was recoded into five categories (less than elementary, elementary, intermediary, secondary and university) after exploratory analysis. Household income was measured in quartiles after imputing missing values, using the hot-deck procedure. Nationality included Lebanese and foreigners. Finally, region of origin referred to administrative governorates in Lebanon (Beirut, Mount Lebanon, North Lebanon) as well as to areas specifically targeted in the war (Dahieh, damaged South, Bekaa) or not (undamaged south, which includes undamaged areas in Tyre and Nabatieh governorates).

Analysis

The descriptive analysis included frequencies of the variables used in the analysis. In addition, a population pyramid to describe the age/sex distribution of the displaced compared to the non-displaced as well as the region of origin by region of destination displacement table were also created. Cross-tabulations with each of the variables with the outcome measures were then conducted with chi-squared tests of associations. Multivariate logistic regression were finally

undertaken to assess the net associations between each of the independent variable and outcome variables. For the cross-tabulations and the multivariate analysis the data were analyzed separately for *affected* areas (those directly under attack which includes regions of Dahieh, damaged South and undamaged South and the Bekaa region) and *non-affected* areas (those not directly hit like Beirut, Mount Lebanon and the North governorate).

Results

Overall, about a third (33%) of the sample was displaced during the 2006 war. The population pyramid in figure 1 indicates that age-sex structure of the displaced was rather similar to the general population, but the displaced were slightly younger and had more females than males. Approximately 39% of females under the age of 15 years were displaced compared to 37% of males under the age of 15 years. For females between the ages of 15 and 60 years, 36% were displaced compared to 33% of males in that age group. For the older age group, about 27% of females over the age of 60 years were displaced compared to 25% of males.

The sample used for the analysis differs from the overall displaced population described above in that it includes all those 18 years and above regardless of displacement status. Table 1 describes the sample according to the variables used in the analysis. The results indicate that the sample is almost equally distributed between males and females with slightly more females. Most of the respondents were in the younger age groups, with almost half of them below the age of 39. Over half of the respondents were married, 36% never married and 8% previously married (widowed, divorced or separated). Around a quarter of the sample had a university level education, and almost 18% had below elementary education. The sample was almost equally distributed between those in the labor force (employed or actively seeking work) and out of the labor force (unemployed and not seeking work). Household size was relatively large with 20% of the sample having a household size of 7-10 individuals. Still, however, the most common living arrangement was nuclear households with no children (around 42%). There were very few non-Lebanese in the sample (only 4.3%). The region of Mount Lebanon had the largest number of respondents, (30%), followed by North Lebanon (18%), the South (16.8% for damaged and undamaged South), Bekaa (12.2%), Dahieh (11.5%) and Beirut (10.8%). The surveyed sample was almost equally distributed between the household income quartiles, with 29% in the 3rd, 27% in the 4th, 23% in the 1st (richest) and 21% in the 2nd. Finally, 23% of the adults lived in families that owned a car.

Table 2 displays bivariates associations between displacement and independent variables. Age, education, labor force status, household size, household type, nationality, region, and income were significantly associated with displacement status In both affected and unaffected areas. Sex was found to be significantly associated with displacement in unaffected areas but not in the affected areas. Marital status was not significant for both affected and unaffected areas and

possession of a car was only significantly associated with displacement in affected areas but not in the unaffected areas.

As shown in table 3, the predictors of displacement were generally similar for affected and unaffected areas, with region, sex, education and marital status statistically significant in both areas after adjusting for other covariates. There are some differences between the two areas, however. Lebanese nationality and being a female were more likely to be displaced in the affected areas, but not in the non-affected areas. Interestingly, neither economic background nor household composition variables were associated with displacement in both areas.

The strongest predictor of displacement was the region where the displaced lived before leaving. People living in areas that were harder hit during the war were more likely to be displaced than others. In the affected areas, those living Dahieh region were 35.1 times more likely to be displaced, and those living in the damaged South were 16.5 times more likely to be displaced, than their counterparts in the Bekaa region. This was clearly due to the large number of air strikes on the Dahieh and South regions. In the unaffected areas, those living in Beirut were 15.6 times more likely to be displaced that those living in the North.

Sex of respondent was not significant for the affected areas in the unadjusted analysis, but it became significant in the multivariate model, with females 1.2 times more likely to be displaced than men. For the unaffected areas sex lost its significance. In the affected areas, being displaced was more likely to occur in younger age groups, where individuals aged 18-29 years were 1.6 times more likely to be displaced than those 60 years old and above. Also, persons aged 30-39 years were 1.4 times more likely to be displaced in affected areas than those 60 years old and above in affected areas. However, none of age groups in the unaffected areas was significantly associated with displacement.

As for education, it was found that the higher the education level the more likely for a person to be displaced with significance found for all categories of education except for secondary in affected areas and intermediary in the unaffected areas. The trend was clear for the unaffected areas were with each increase in the level of education the likelihood of being displaced increased. For the affected areas there was no clear trend in the association between education and displacement. However, those with a university degree were 1.4 times more likely to be displaced in affected areas and 1.7 times more likely to be displaced in unaffected areas compared to those with less than elementary education.

Marital status was significantly associated with displacement in the adjusted analysis for both affected and unaffected areas, although in the unadjusted analysis marital status was not significantly associated with displacement. In the affected areas, the married were 1.5 times more likely to be displaced than the never married. In the unaffected areas, married adults were 1.3 times more likely and the previously married were 1.7 times more likely to be displaced than their never married counterparts. Both household size and household type (except for two

categories) were not significant predictors of displacement in both affected and unaffected areas. One of the two categories for these variables that did remain significant was having a household size of 7-10 individuals which caused it to be 1.6 times more likely to be displaced than a household size of 1-3 individuals but only in the unaffected areas. Also, being a nuclear family with children less than 15 years old made it 1.5 times more likely to be displaced than an extended family with children under 15 years old.

In the affected areas, Lebanese were 2.8 times more likely to be displaced than non-Lebanese, but nationality was not found to be significant in the unaffected areas. Finally, for both the affected and the unaffected areas, income and work status had lost their significance after adjusting for other variables. The possession of a car was non-significant for both unaffected and affected areas after adjusting for other variables.

Where did all of the displaced people go during the war?

Table 4 displays the outflow percentages of displaced population from governorates of origin. Three main trends can be documented. First, with the exception of Beirut and Nabatia, within governorate displacement was relatively high during the war, reaching a high of 65% in Mount Lebanon. Second, the area of Mount Lebanon was a popular destination, and the majority of the displaced originating from Beirut, South Lebanon and Nabatieh had moved to Mount Lebanon. Third, the proportions of displaced people moving abroad were relatively high, and most of the displaced from the Bekaa (66.3%), which was an area directly under attack during the war, had moved abroad, most likely to Syria. Finally, Governorates in the north and center of the country (Beirut, Mount Lebanon and North Lebanon) were net receivers of displaced persons as compared to other regions.

Clear differences between the war-affected and unaffected areas were also observed for the place of accommodation during displacement. As shown in figure 2, those displaced from unaffected areas like Beirut, Mount Lebanon and North mostly moved to a secondary or family house. On the other hand, displaced persons from war-affected areas stayed mostly at temporary shelters in schools. This is particularly the case for the damaged south and Bekaa region. It is interesting to note that the proportions of displaced staying at a friend's home were common in all regions, ranging from 10% to 23%.

Discussion and Conclusions

The purpose of this paper was to explore the associations between war-displacement and some demographic and socio-economic characteristics of adults and their families during the 2006 Lebanon war. In the analysis, we distinguished between war affected and unaffected areas. The

findings showed that as expected the intensity of air attacks as indexed by region of residence was the strongest predictor for displacement. In addition, demographic and social background factors such as younger age, marriage, and higher education had higher odds of displacement compared to others. Interestingly, household composition and size, economic standing and possession of a car were not related to displacement during the war.

Areas that were under the strongest attack were the areas that had the highest odds of displacement. Our results are consistent with previous studies investigating evacuation behavior after hurricanes in the US (Smith and Mccarty 1996, 2009). Although there are some differences between evacuation and war caused displacements, in both case, fear over one's life is the driving force behind fleeing one's residence to seek shelter in another area. Evacuation aftr hurricane can be more orderly, and directed by official agencies or organizations, as compared to fairly spontaneous movements in war situations. In their study of evacuation behavior after four hurricanes in Florida, Smith and Mccarty (2009) found clear association between the strength of the hurricane and the odds of evacuation. In our case, the Dahieh was the region that sustained most damage from air bombing [ref], and it was the one with the highest odds of displacement.

In the unaffected areas, Beirut had a high level of displacement as well, but this is most likely due to the proximity of Beirut to the Dahiyeh (suburb) neighborhoods but also may be due to the tendency for the residents of Beirut to change residence owing to a prolonged history of civil war from 1976-1990. The sound of constant bombings and air flights heard from the nearby heavily bombed Dahieh area might have encouraged many to flee the city for calmer places. Furthermore, the availability of basic services might have played a role in the decision of individuals to flee. Beirut city absorbed thousands of families coming from South Lebanon and Dahieh, overburdening the capacity of infrastructure to support the population. By the second week of the war, shortages in electricity and water in the capital was evident, causing perhaps its residents as well as newly arrived displaced people to seek residence in better served areas. This is in line with what Smith and Mccarty (2009) argued in the case of hurricane Andrew, emphasizing the role played by electricity and water shortage in relocation decisions. Another plausible explanation for the high odds of displacement in Beirut was the fear of anticipated occupation of the capital by Israel, a repeat of the 1982 Israeli invasion [Ref]. The higher odds of fleeing after a former experience of displacement are common as for example the case of Palestinian refugees fleeing the West Bank to Jordan after the 1967 war [Ref]. Finally, the majority of businesses and organizations based in Beirut closed their doors by the onset of the war, prompting many employees to leave Beirut for the mountain areas or abroad. It should mentioned that many Beirut families, especially the well to do among them, tend to spend the summer time in the mountain areas during the summer months, either in their own secondary residence or rented homes.

On the other hand, residents of the north region had one of the lowest odds of displacement owing to the location of this region, being the furthest from the southern border with Israel and hence from attacks. There were however, some attacks directed at bridges along the Northern shore, with some civilian casualties [Ref]. It should be pointed out however that

the air attacks were also directed at areas with high concentration of Shiite populations regardless of location as for example the Baa'labak metropolitan area in the Bekaa' region.

Some demographic background factors were related to displacement, but not all. In the affected areas, females had higher odds of displacement then males. Previous studies on evacuation patterns during natural disasters also reported higher evacuation rates for women than men (Smith and Mccarty 2009). The gender difference was clearly shown in the population pyramid with displacement status, indicating that higher numbers of females were displaced at each age group. This may be due to women fleeing their homes with their children and leaving their husbands behind to protect their homes. The population pyramid indicates that more women than men flee after the age of 20-24, when the majority of women would be married.

In addition, it was found that those that adults who were married or previously married were more likely to be displaced than those who were never married, implying that the displaced were fleeing with their families rather than individually. However, the findings indicated that some categories of household size and household type were significant predictors of displacement only in the unaffected areas. For the affected areas, adults were fleeing regardless of family size and composition, implying a demographic homogeneity with respect to displacement behavior. The family pattern in fleeing was observed in the case of natural disasters (Smith and Mccarty, 2009). The findings showed lower odds of displacement among older adults compared to the young, implying that older adults behaved independently of their kin. However, it can be argued that in the Lebanese context, other members of their families e.g., unmarried women, probably stayed with them. Indeed, the results showed that the unmarried were less likely to flee compared to the married, and this might be explained by the need to care for the elderly who stayed behind.

Surprisingly, economic background factors were not significant predictors of displacement as would be the case during natural disasters (Smith and Mccarty, 2009) or labor mobility [Ref]. Thus, household income level, work status and possession of a car were not significantly related to displacement behavior in the adjusted regression. One would expect that having a higher income and having a job would be enabling factors for forced movement, providing means for locating and affording temporary residence elsewhere. This would be certainly the case for those moving across borders, to Syria or even across the sea via Cyprus. However, the availability of free shelters at public institutions such as schools during the war, and the high solidarity exhibited by host residents in the unaffected areas in providing temporary housing of the displaced could have neutralized the effect of income on displacement. Within only few hours after the start of the war, it was announced that free public displacement centers in Beirut, North and Mount Lebanon, as well as in Syrian towns to shelter the displaced were opened [Ref]. Thus, unlike in the case of labor migration, forced movement was relatively cheap, and could be affordable for those at the lower income brackets. Another unexpected but related finding was that the possession of a car did not increase the odds of displacement. This may indicate that many of those displaced were probably using other means of transportation while fleeing.

Indeed, mutual assistance displayed by the displaced population was documented, with people willingly shared transportation (Shearer 2006; Nuwayhid et al 2009).

Unlike income, higher education was a significant predictor for displacement in both war-affected and unaffected areas. Literacy is clearly related to media exposure, especially print media, and hence knowledge about the scale of war and its consequences. It is also possible that more educated people have more friendship and kinship ties outside their communities of residence, making easier for them to move and find accommodation during the war than their less educated counterparts. Yet another explanation could be that educated people especially at the post-secondary level may be more calculating, and are therefore less likely to take high risks by staying in war-torn areas.

Finally, nationality was a relatively strong predictor of displacement in the war-affected areas. The non-Lebanese category probably consisted of mostly foreign maids, Syrian laborers or Palestinian refugees, with little or no social ties outside their locality of residence, or with little financial means to live on after displacement, or both.

The study also shed some light on the choice of accommodation after displacement for those displaced. Since the 2006 war was rather sudden, and surprised all parties concerned including Israelis (Shenhar et al., 2008), many people probably left their places of residence immediately without proper planning for their displacement. A few caveats are in order. The choice of accommodation and destination was therefore affected by people's perception of safety and danger as well as by opportunities of accommodation available to them at places of destination. Also, during the entire 33 days of war, many of the main roads throughout the affected areas were subjected to Israeli bombing, and even humanitarian evacuation convoys were attacked as the bombing of the Red Cross ambulances and the Jezzine pre-negotiated evacuation convoy. The implication of this is that people tended to lessen their exposure to danger by shorting travel time. Thus, it was not surprising to find a relatively high prevalence of within-governate displacement in the affected South Lebanon and Beqaa. Instead of opting for costly and extremely dangerous long trips to Beirut or Mount Lebanon, some people in the South might have chosen to relocate to neighboring Christian villages which were perceived as safe.

The choice of destination in unaffected areas was probably influenced by personal security considerations. The small within governorate displacement in Beirut can be explained by the lack of countryside in the Beirut governorate. It is not surprising therefore to find those who fled Beirut were destined to the mountains, or to countries abroad. Similarly, the few families which were displaced in the North probably moved to secondary residences, or stayed with relatives, in the mountainous villages in the North with the rest fleeing to neighboring Syria.

The type of accommodation varied substantially depending on their region of origin. In Lebanon, many families have a secondary residence – and for those residing in Beirut or urban places, it is usually located in the village of origin for the family concerned. Thus the pattern of accommodation in Lebanon during the conflict was quite different than previously reported in other disaster or war situations (Efrat 1992; Smith and Mccarty, 2009). For those in South Lebanon, secondary residences were probably not sought because they are often located within

South Lebanon, an area heavily targeted by bombing. A similar situation faced the inhabitants of Dahieh with secondary residences in their villages of origin, mostly in the South or Baalabak. This explains the lower tendency of residents from the South and Dahieh, and the greater tendency of residents of unaffected areas, to stay in secondary residences. For others lacking secondary residences, the options were either to rent a premise in safer areas or to stay in public shelter free of charge. This was the case for those originating in war-affected areas in the South and Dahieh.

Another interesting feature of this war was the relatively high proportion of displaced people staying with relatives and friends living in safer areas. A similar pattern was reported for Israel during the 1991 Gulf war (Erfat 1992), and may signal the importance of social support as a universal feature during periods of crises and mass disasters.

This study was based on unique, nationally representative data collected after the end of the 2006 Lebanon war, and this was one of its main strength. However, the study suffers from several limitations. First, the set of predictors used in the study included fairly objective demographic and socio-economic variables, but not subjective factors relating to displacement behavior. Respondents were not asked for example the precise reasons for moving or staying during the war. Second, the data were collected retrospectively, nearly six months after the end of the war, which might have resulted in some recall problems in the data. Third, the study was cross-sectional in design, preventing us from inferring causal associations between displacement behavior and background factors. Fourth, only displacement status was asked in the survey, without any information about the number of moves and their exact timing during the course of the war. Finally, it was unclear if some of the respondents were still displaced during the interview, as spells of displacement also varied among the displacement population, with some are still unable to return to their homes until this day.

References

Aljazeera, 24 July 2006 Timeline: Crisis in Lebanon Available from http://english.aljazeera.net/ [Accessed July 2009]

BBC News, 13 July 2006, Israel imposes Lebanon blockade. Available from http://news.bbc.co.uk/2/hi/middle_east/5175160.stm [Accessed July 2009]

Higher Relief Commission, (HRC) Daily situation Report. Report No 69, Date 09/10/2006. http://www.reliefweb.int/rw/RWFiles2006.nsf/FilesByRWDocUNIDFileName/VBOL-6UEGSR-govlbn-lbn-09oct.pdf/$File/govlbn-lbn-09oct.pdf/ [Accessed July 2009]

Internal displacement monitoring center (IDMC) Population figures and profile. Global figures July-August 2006 conflict. "Nearly one quarter of Lebanon's population displaced at the height of the conflict, the majority within the country (2006)" Available from http://www.internal-displacement.org/idmc/website/countries.nsf/(httpEnvelopes)/8307AD81B4FBF4EEC1257221004F23B4?OpenDocument [Accessed July 2009]

The Guardian, 12 July 2006, Israelis invade Lebanon after soldiers are seized. Available from : http://www.guardian.co.uk/world/2006/jul/12/israelandthepalestinians.lebanon [Accessed July 2009]

UN Office for the Coordination of Humanitarian Affairs (UN OCHA), 31 August 2006, Revised Lebanon Crisis Flash Appeal 2006 Available from http://www.internal-displacement.org/8025708F004CE90B/(httpDocuments)/CAD0151DF8BB4B95C12571DC002ED7D0/$file/Revision_2006_Flash_LebanonCrisis_SCREEN.pdf [Accessed July 2009]

UNSC, 21 July 2006, p.2 United Nations Security Council (UN SC), 21 July 2006, Report of the Secretary-General on the United Nations Interim Force in Lebanon (S/2006/560) (For the period from 21 January 2006 to 18 July 2006) available from http://www.reliefweb.int/rw/RWB.NSF/db900SID/EGUA-6RZPCR?OpenDocument&rc=3&emid=SODA-6RT2S7 [Accessed July 2009]

Erfat, E. 1992. The geography of a population mass-escape from the Tel Aviv area during the Gulf war. *The Geographic Journal* 158 (2): 199-206.

Nuwayhid, I., Zurayk, H., Yamout, R,. and Cortas, S. 2009. Summer 2006 war on Lebanon: A lesson in community resilience. Unpublished manuscript, Faculty of Health Sciences, American University of Beirut. .

Shearer, D., 2006. Lebanon, a unique example of humanitarian solidarity. *The Daily Star*, September 26, 2006.

Shenhar, G., Gidron, D., and Peleg, K. 2008. Mass population displacement under an unclear evacuation policy during the Israel-Lebanon war 2006. *Journal of Homeland Security and Emergency Management* 5(1): 1-11.

Smith, S.K., and Mc Carty, C., 2009. Fleeing the storm(s): an examination of evacuation behavior during Florida's 2004 hurricane season. *Demography*, 46(1),127–145.

Smith S.K., and McCarty, C., 1996. Demographic effects of natural disasters: A case study of Hurricane Andrew. *Demography*, 33(2), 265-275.

Figure 1: Population pyramid showing distribution of displaced population

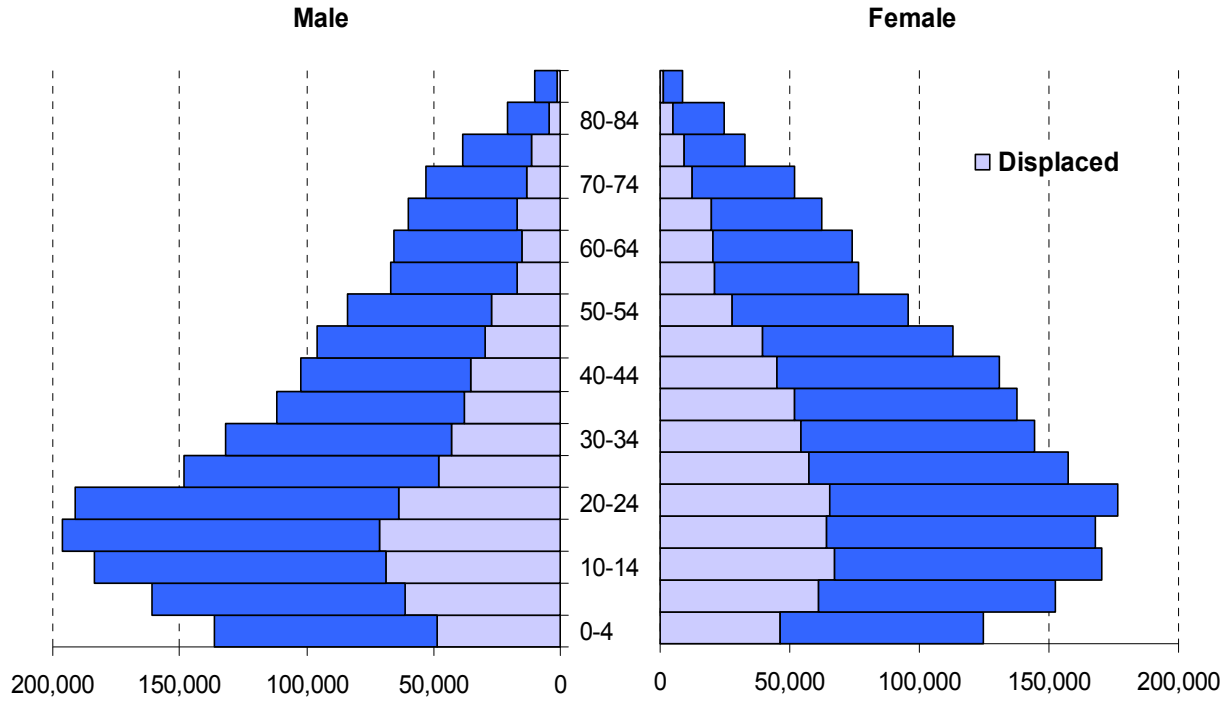

Table 1: Distribution of the sample by background variables

Variable	N	%
Sex		
Male	8789	46.5
Female	10095	53.5
Age		
18-29	5694	30.2
30-39	3779	20.0
40-49	3231	17.1
50-59	2411	12.8
60+	3769	10.0
Marital Status		
Never married	6715	35.6
Married	10657	56.4
Widowed/divorced/separated	1511	8.0
Education Level		
<elementary	3,444	18.2
elementary	4,152	22.0
intermediary	3,692	19.6
secondary	2,539	13.4
university	4,799	25.4
Work status		
out of labor force	10,121	53.6
in labor force	8,762	46.4
Household size		
1-3	5021	26.6
4	3501	18.5
5	3834	20.3
6	2736	14.5
7-10	3792	20.1
Household type		
Loner	474	2.5
Nuclear, no children <15	7943	42.1
Nuclear, children <15	6518	34.5
Extended, no children <15	2007	10.6
Extended, children <15	1941	10.3
Nationality		
Lebanese	18068	95.7
Non-Lebanese	815	4.3
Region of origin		
Beirut	2047	10.8
Mount Lebanon	5715	30.3
North	3465	18.3
Dahyieh	2175	11.5
Bekaa	2312	12.2
undamaged South	1194	6.3
damaged south	1975	10.5
Possession of car		
No	14581	77.2
Yes	4303	22.8
Income		
1st quartile	4303	22.8
2nd quartile	4010	21.2
3rd quartile	5398	28.6
4th quartile	5173	27.4

Table 2: Associations between displacement and background variables by area

Variable	Affected Areas (n=7657)			Unaffected Areas (n=11227)		
	Displaced N (%)	Non-displaced N (%)	p-value*	Displaced N (%)	Non-displaced N (%)	p-value*
Sex			0.064			0.004
Male	2020 (56.2%)	1575 (43.8%)		795 (15.3%)	4398 (84.7%)	
Female	2367 (58.3%)	1694 (41.7%)		1045 (17.3%)	4989 (82.7%)	
Age			0.000			0.000
18-29	1505 (60.9%)	966 (39.1%)		563 (17.5%)	2660 (82.5%)	
30-39	970 (61.9%)	598 (38.1%)		410 (18.5%)	1801 (81.5%)	
40-49	795 (57.6%)	585 (42.4%)		304 (16.4%)	1547 (83.6%)	
50-59	473 (52.7%)	424 (47.3%)		227 (15.0%)	1287 (85.0%)	
60+	645 (48.1%)	697(51.9%)		336 (13.8%)	2092 (86.2%)	
Marital Status			0.186			0.077
Never married	1540 (56.9%)	1168 (43.1%)		630 (15.7%)	3378 (84.3%)	
Married	2541 (58.0%)	1841 (42.0%)		1033 (16.5%)	5242 (83.5%)	
Widowed/divorced/separated	307 (54.1%)	260 (45.9%)		177 (18.7%)	768 (81.3%)	
Education Level			0.000			0.000
<elementary	817 (48.9%)	853 (51.1%)		174 (9.8%)	1600 (90.2%)	
elementary	1106 (58.5%)	784 (41.5%)		334 (14.8%)	1928 (85.2%)	
intermediary	954 (60.6%)	619 (39.4%)		323 (15.2%)	1797 (84.8%)	
secondary	487 (58.3%)	349 (41.7%)		312 (18.3%)	1391 (81.7%)	
university	993 (60.7%)	643 (39.3%)		640 (20.2%)	2522 (79.8%)	
Work status			0.001			0.021
out of labor force	2412 (55.6%)	1924 (44.4%)		903 (15.6%)	4883 (84.4%)	
in labor force	1976 (59.5%)	1346 (40.5%)		937 (17.2%)	4503 (82.8%)	
Household size			0.000			0.017
1-3	942 (52.6%)	849 (47.4%)		501 (15.5%)	2729 (84.5%)	
4	732 (59.6%)	496 (40.4%)		354 (15.6%)	1918 (84.4%)	
5	888 (59.3%)	609 (40.7%)		414 (17.7%)	1923 (82.3%)	
6	724 (59.1%)	502 (40.9%)		280 (18.5%)	1231 (81.5%)	
7-10	1101 (57.5%)	814 (42.5%)		291 (15.5%)	1586 (84.5%)	
Household type			0.000			0.000
Loner	72 (43.6%)	93 (56.4%)		62 (20.0%)	248 (80.0%)	
Nuclear, no children <15	1634 (53.3%)	1433 (46.7%)		639 (13.1%)	4238 (86.9%)	
Nuclear, children <15	1920 (61.0%)	1230 (39.0%)		663 (19.7%)	2706 (80.3%)	
Extended, no children <15	304 (56.0%)	239 (44.0%)		233 (15.9%)	1231 (84.1%)	
Extended, children <15	458 (62.6%)	274 (37.4%)		244 (20.2%)	965 (79.8%)	
Nationality			0.000			0.000
Lebanese	4198 (57.9%)	3050 (42.1%)		1741 (16.1%)	9078 (83.9%)	
Non-Lebanese	189 (46.3%)	219 (53.7%)		99 (24.3%)	309 (75.7%)	
Region of origin			0.000			0.000
Dahyieh	1945 (89.4%)	230 (10.6%)	Beirut	601 (29.3%)	1447 (70.7%)	
Bekaa	468 (20.2%)	1845 (79.8%)	Mount Leb.	1132 (19.8%)	4583 (80.2%)	
undamaged South	401 (33.6%)	793 (66.4%)	North	108 (3.1%)	3357 (96.9%)	
damaged south	1574 (79.7%)	401 (20.3%)				
Possession of car			0.000			0.073
No	2372 (61.8%)	1468 (38.2%)		567 (15.5%)	3094 (84.5%)	
Yes	2015 (52.8%)	1801 (47.2%)		1273 (16.8%)	6293 (83.2%)	
Income			0.000			0.000
1st quartile	1102 (53.3%)	966 (46.7%)		285 (12.7%)	1951 (87.3%)	
2nd quartile	1272 (62.6%)	759 (37.4%)		301 (15.2%)	1678 (84.8%)	
3rd quartile	1354 (58.3%)	968 (41.7%)		557 (18.1%)	2519 (81.9%)	
4th quartile	660 (53.4%)	577 (46.6%)		697 (17.7%)	3239 (82.3%)	

*p-values are for two-tailed X^2 test.

Table 3: Multivariate logistic regression of displacement by selected variables and area

	Affected Areas			Unaffected Areas	
Variable	**OR**	**p-value**		**OR**	**p-value**
Sex					
Male (reference)	1.0			1.0	
Female	1.2	0.007		1.1	0.052
Age					
18-29	1.6	0.001		1.3	0.056
30-39	1.4	0.008		1.2	0.048
40-49	1.2	0.261		1.0	0.649
50-59	1.0	0.778		1.0	0.835
60+ (reference)	1.0			1.0	
Marital Status					
Never married (reference	1.0			1.0	
Married	1.5	0.000		1.3	0.012
Widowed/divorced/separated	1.5	0.019		1.7	0.000
Education Level					
<elementary (reference)	1.0			1.0	
Elementary	1.4	0.000		1.4	0.003
Intermediary	1.3	0.026		1.1	0.254
Secondary	1.2	0.176		1.6	0.000
University	1.4	0.004		1.7	0.000
Work status					
Out of labor force (reference)	1.0			1.0	
In labor force	1.0	0.634		1.1	0.400
Household size					
1-3	1.0			1.0	
4	1.1	0.381		0.9	0.080
5	1.0	0.618		1.0	0.692
6	1.1	0.627		1.2	0.033
7-10 (reference)	1.1	0.388		1.6	0.000
Household type					
Loner	0.6	0.045		1.3	0.231
Nuclear, no children <15	0.9	0.547		0.9	0.122
Nuclear, children <15	0.9	0.556		1.5	0.000
Extended, no children <15	0.9	0.564		0.9	0.246
Extended, children <15 (reference)	1.0			1.0	
Nationality					
Lebanese	2.8	0.000		1.2	0.417
Non-Lebanese (reference)	1.0			1.0	
Region of origin					
Bekaa (reference)	1.0		North (reference)	1.0	
Dahyieh	35.1	0.000	Beirut	15.6	0.000
Undamaged South	2.1	0.000	Mount Lebanon	9.9	0.000
Damaged south	16.5	0.000			
Possession of car					
No (reference)	1.0			1.0	
Yes	1.0	0.817		0.9	0.201
Income					
1st quartile (reference)	1.0			1.0	
2nd quartile	1.1	0.267		1.0	0.573
3rd quartile	1.1	0.500		1.0	0.916
4th quartile	1.0	0.983		0.8	0.012

Table 4: Outflow rates of the displaced from region of origin to region of destination and Abroad

Origin \ Moved to	Beirut	Mount Lebanon	North Lebanon	Bekaa	South Lebanon	Nabatieh	Abroad	Total (n)
Beirut	**7.9**	56.8	7.0	2.4	0.5	0.5	25.0	835
Mount Lebanon	17.5	**51.1**	4.6	12.4	1.6	0.3	12.5	4741
North Lebanon	0.0	3.1	**64.8**	0.0	0.0	0.0	32.1	193
Bekaa	0.5	1.5	0.0	**30.7**	1.1	0.0	66.3	756
South Lebanon	14.1	40.8	4.2	0.3	**33.6**	0.4	6.7	1749
Nabatieh	21.5	33.8	4.1	3.1	25.6	**2.4**	9.5	1440
Total (n)	1454	4117	534	888	1044	60	1617	9714

Figure 2: Place where displaced lived when they moved out of their homes