An Inter-group Conflict Model Integrating Perceived Threat, Vested Interests and Alternative Strategies for Cooperation

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Objectives

1. A selective & brief review of emerging research on intergroup conflict including
   - Social Sciences
   - Social Psychology
   - Game Theory
   - Cognitive Psychology

2. Examine a specific example the impact of perceived/ actual threat on Israeli and Palestinian public opinion towards the peace process

3. Integrate selected research on conflict into a dynamic simulation model

4. Examine potential avenues for further research

Illustrative References

- Coser, L., (1956). The Functions of Social Conflict, The Free Press, New York.

- Huddy, L., Feldman, S., Capelos, T. & Provost, C. (2002). The effects of consequences of terrorism: Disentangling the effects of personal and national threat. *International Society of Political Psychology 23*(3): 485-509.

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- Kydd, A. and Walter, B. (2002). Sabotaging the peace: The politics of extremist violence. International Organization 56(2): 263-296.

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- Pyszczynski, T., Solomon, S., & Greenberg, J. (2003). *In the wake of 9/11: The psychology of terror.* Washington, DC: American Psychological Association.

- Westen, D., Kilts, C., Blagov, P., Harenski, K., & Hamann, S. (2006). The neural basis of motivated reasoning: An fMRI study of emotional constraints on political judgment during the U.S.Presidential election of 2004. *Journal of Cognitive Neuroscience, 18*, 1947–1958.

- Early research by Coser (1956) The Functions of Social Conflict – developed exemplary propositions
  - Conflict creates associations/identities
  - Conflict increases internal cohesion
  - Conflict increases binds antagonists
  - Conflict maintains the balance of power

- Research by economists, political scientists, sociologists has found
  - Economic
    - Overall wealth of country (and insurgents)
    - Availability of resources
  - Structural/Political
    - Supply of weapons to groups in conflict
    - Strength of central government
    - Geographic isolation of insurgent groups
    - Level of ethnic diversity

- Other less studied factors are psychological dynamics associated with conflict and in particular perceived external threats

Psychology, perceived threat and conflict

- Public attitudes may be especially responsive to conditions of threat that affect individuals' sense of mortality (Rosenblatt, et. al., 1989 and Greenberg et. al., 1990).

- Perception of threat has been found to have significant effects on public attitudes, tolerance of dissent, and support for political leaders (Pyszcznski, Sheldon, and Greenberg, 2003).

- Huddy et. al., found that "as perceived threat increased, there was heightened support for a wide range of domestic and international government actions to combat the threat of terrorism" (Huddy et al., 2005, p. 604).

- Kahneman, D and J. Renshon. 2007. "Why Hawks Win." *Foreign Policy* December 27, 2006. Biases in human decision making processes tend to tilt humans toward conflict – in conflict situations (misperceive motives, illusion of control, exaggeration of strengths and own intentions, misperception of own abilities).

- Westen, D., Kilts, C., Blagov, P., Harenski, K., & Hamann, S. (2006). The neural basis of motivated reasoning: An fMRI study of emotional constraints on political judgment during the U.S.Presidential election of 2004. *Journal of Cognitive Neuroscience, 18*, 1947–1958. Motivated reasoning (or the affective bases for decision-making) can produce a hardening of political positions (partisans becoming more partisan)

From psychological literature derived a set of propositions concerning the general population's reaction to threat

Level of Threat	Reactions/Strategies of General Population in Response to Perceived Threat				
	Negative view of out-group	Positive In-group identity	Support for aggressive leader	Support for aggressive polices	Tolerance for alternative views – esp. with regard to cooperation/ peace
High	Increase	Increase	Increase	Increase	Decrease
Low	Decrease	Decrease	Decrease	Decrease	Increase

Table 1

Percent reporting on the question: Compared to four years ago, do you think New York City is more safe today, less safe today, or about as safe today as it was four years age?

Race	Prior to September 11th			After September 11th		
	More	Less	Same	More	Less	Same
White	58	12	28	37	24	37
Black	66	7	25	37	16	46
Hispanic	54	15	29	47	26	26

Table 2

Percent reporting on the question: Do you have a lot of confidence, some confidence, or no confidence that your neighbors would help you in an emergency?

Race	Prior to September 11th			After September 11th		
	A Lot	Some	None	A Lot	Some	None
White	48	32	17	61	29	6
Black	41	37	21	54	32	11
Hispanic	38	33	27	64	24	9

Table 3

Percent reporting on the question: Do you think race relations in New York City today are generally good, or generally bad?

Race	Prior to September 11th		After September 11th	
	Good	Bad	Good	Bad
White	59	25	69	20
Black	38	48	53	35
Hispanic	41	44	56	30

Bush's approval rating + half of undecided

9/11

Start
Iraq

Saddam's
capture

Bush
elected

Katrina

Iraq
election

Congress
elected
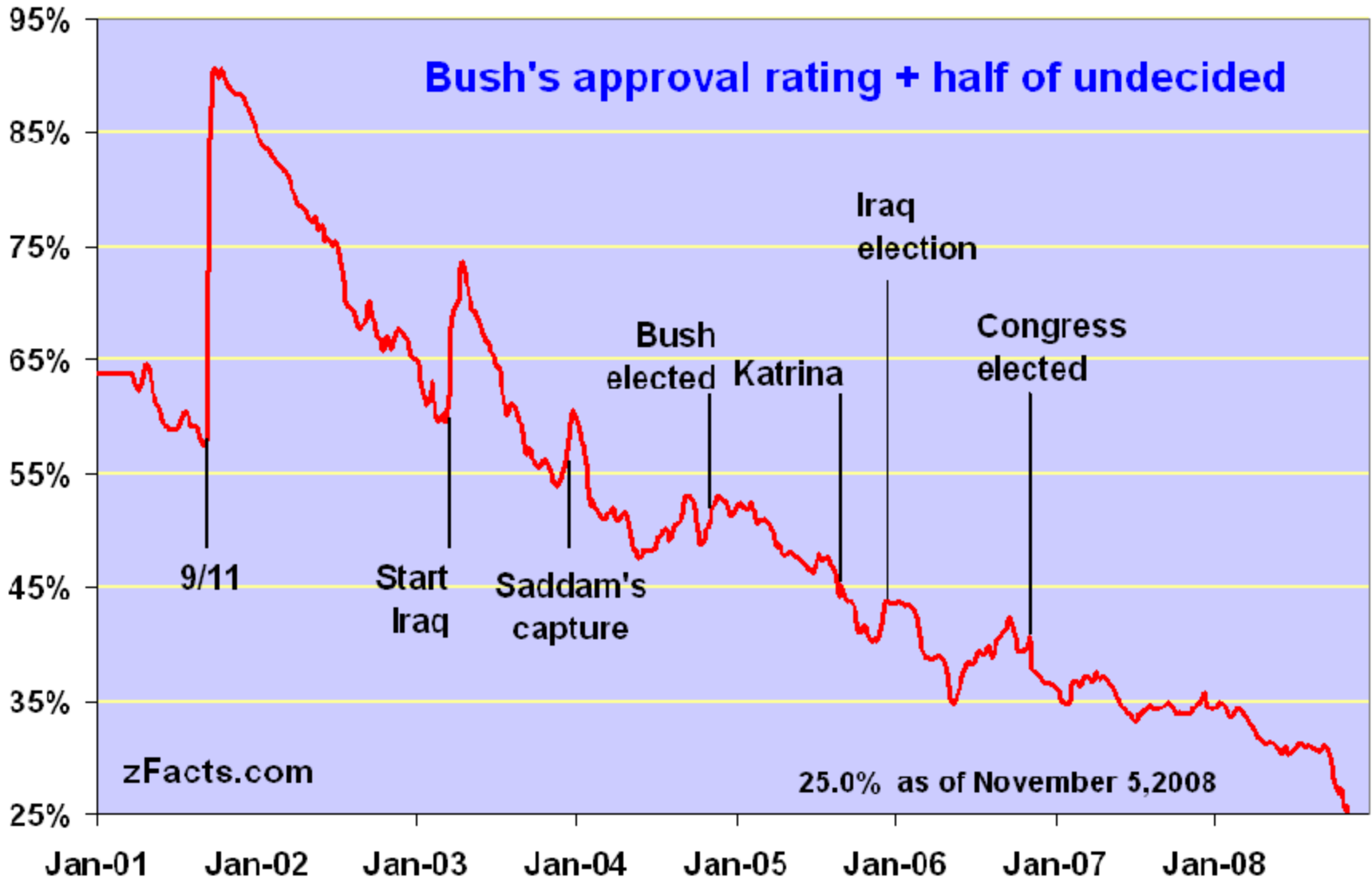
zFacts.com

25.0% as of November 5, 2008

Empirical Example

"The Impact of Perceived Threat and Policy on Palestinian Attitudes towards the Peace Process"

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Glenn Pierce
School of Criminology and Criminal Justice

Hypotheses

- H1   In response to threat, public support for aggressive action against the external opponent will increase

- H2   In response to threat, public support for a negotiated settlement with the external opponent will be reduced

- H3   In response to external threat, support for negotiation-oriented leadership will decrease, and support for conflict-oriented leadership will increase

Threat and impact on public opinion among Israelis an Palestinians:1994 to 2011

- Measuring threat
  - Israelis
  - Palestinians

- Measuring Impact
  - Public support for peace (cooperation)
    - Israelis
    - Palestinians
  - Public support for political leaders
    - Israelis
    - Palestinians
  - Public support for aggressive actions
    - Palestinians

- Examining the impact of threat on public attitudes
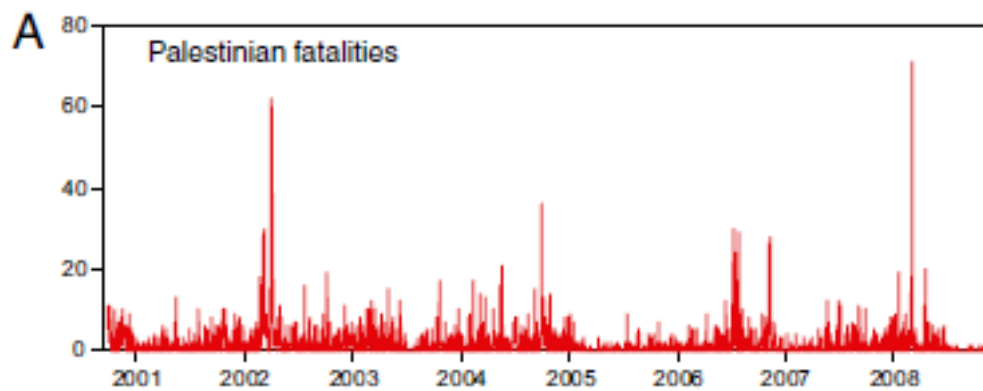
Measuring Threat

"Both sides retaliate in the Israeli–
Palestinian conflict"
Johannes Haushofera,1, Anat Biletzkib,c,
and Nancy Kanwisherd,1 - PNAS
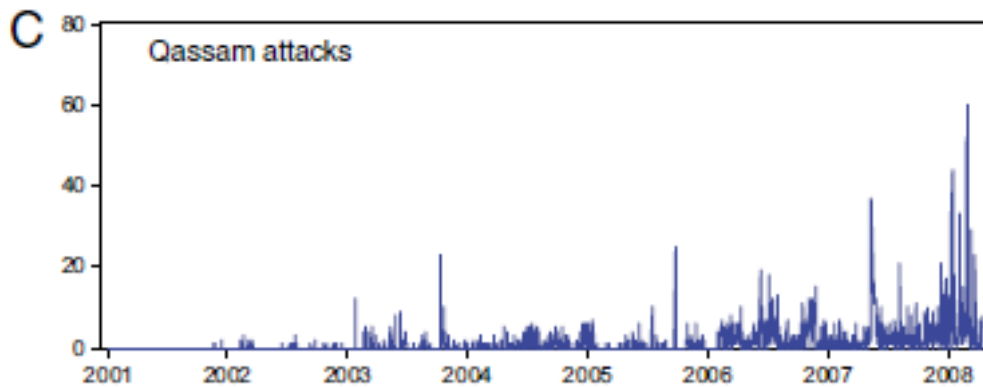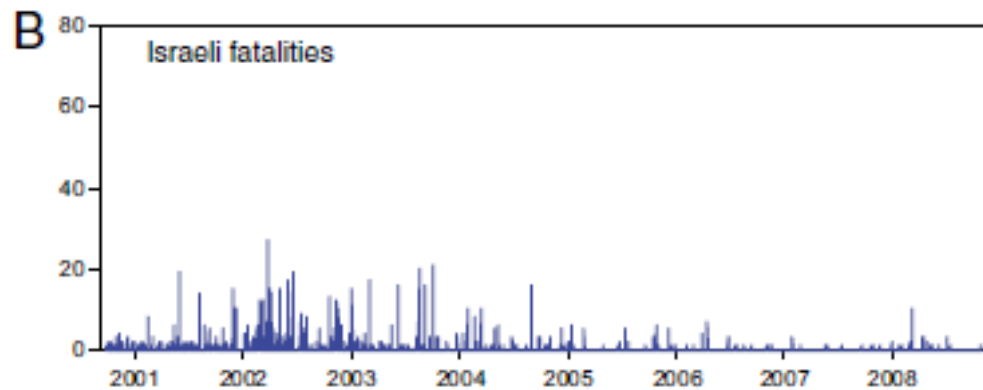
Fig. 1. Time series of Palestinian fatalities (*A*), Israeli fatalities (*B*), and Qas-
sam attacks by Palestinians on Israel (*C*). Data are daily event counts between
2000 and 2008 (Table 1), compiled from data from the Israeli human rights
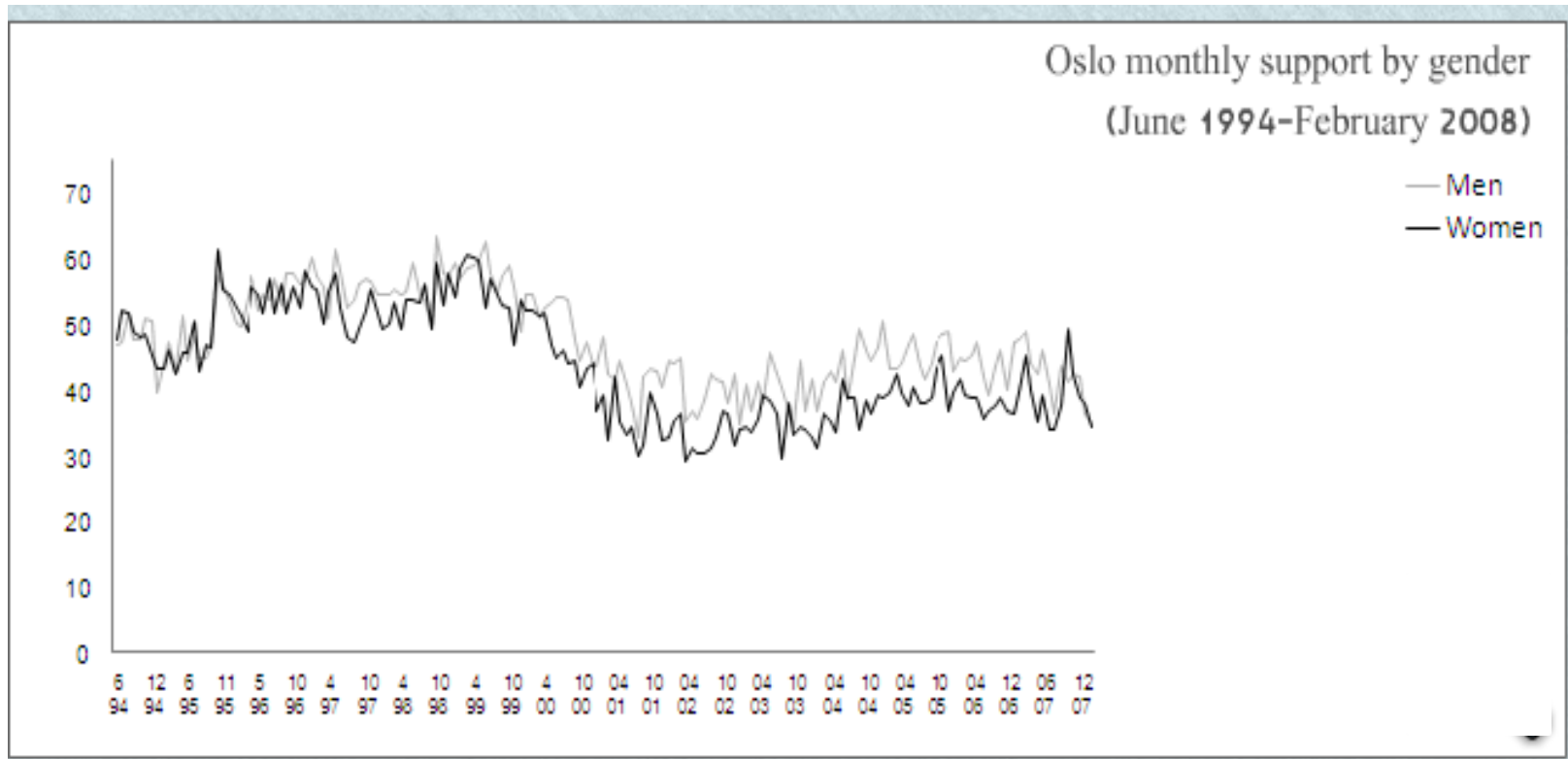organization B'Tselem (*A* and *B*) and the Israeli Defense Forces (*C*).

Impact on support for peace

Israeli Threat & The Peace Index
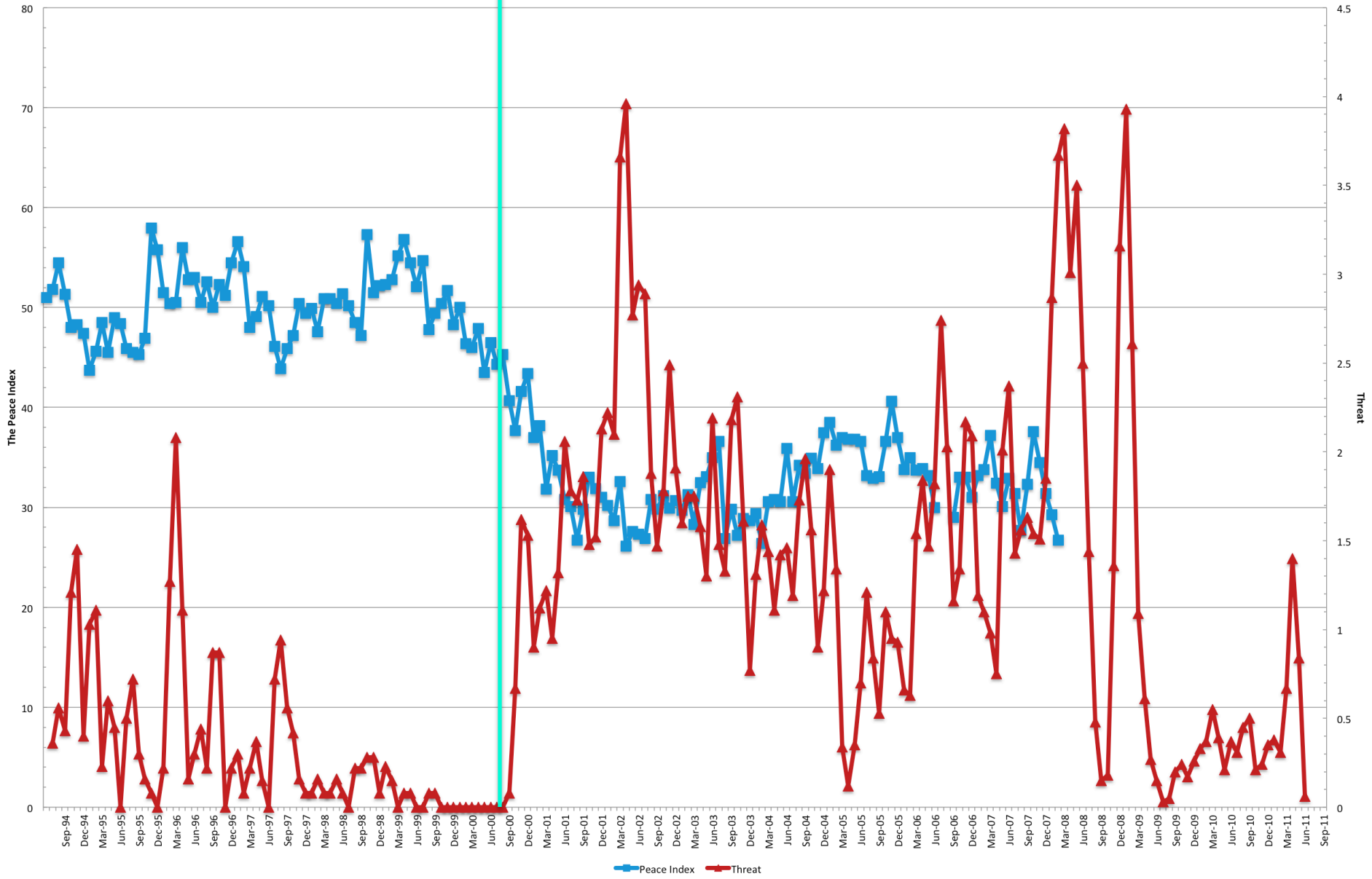
# Level of Threat and Support for Oslo Peace Process in Israeli by Demographic groups: Gender

Oslo monthly support by gender
(June 1994–February 2008)

— Men
— Women

The Israel Democracy Institute: http://www.peaceindex.org/GraphsEng.aspx

Level of Threat and Support for Oslo Peace Process in Israeli across Demographic groups: Education level

The Israel Democracy Institute: http://www.peaceindex.org/GraphsEng.aspx

Palestinian Casualties & Support for the Peace Process
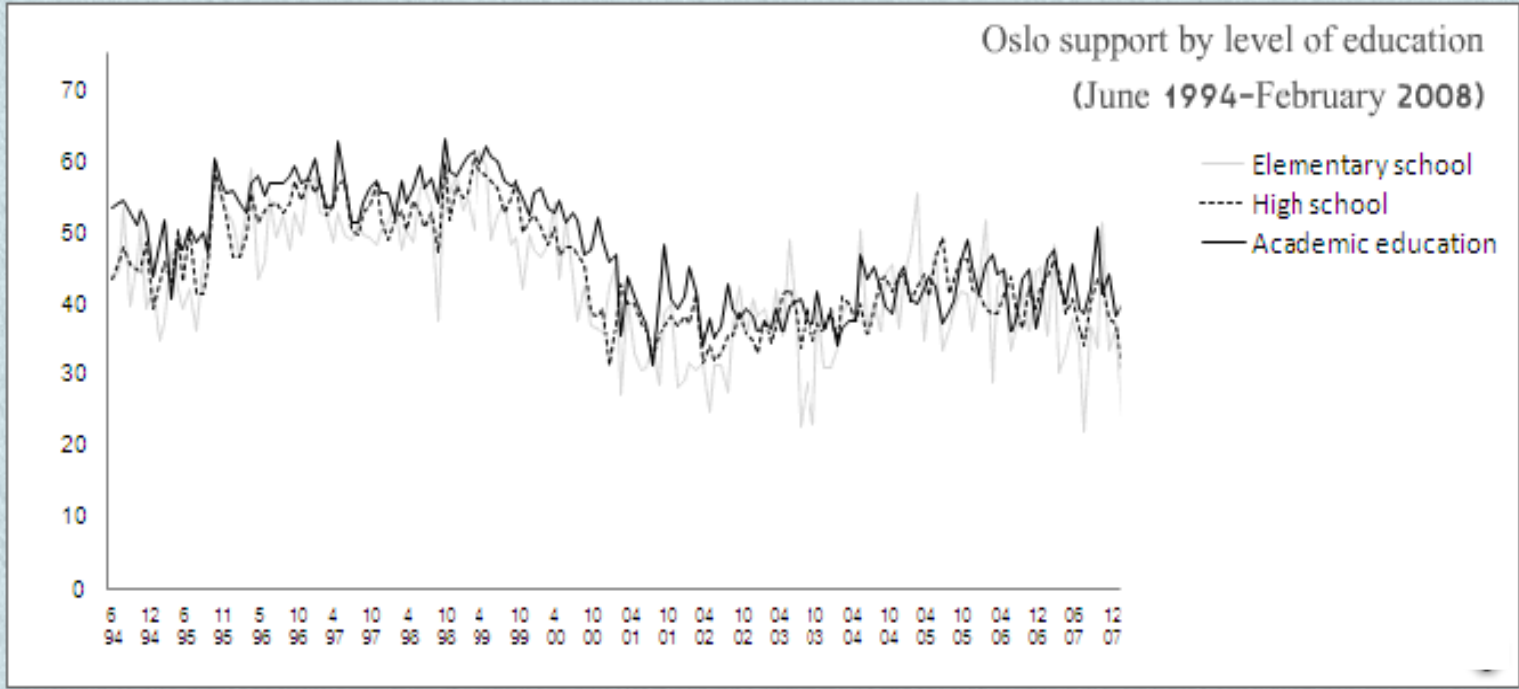
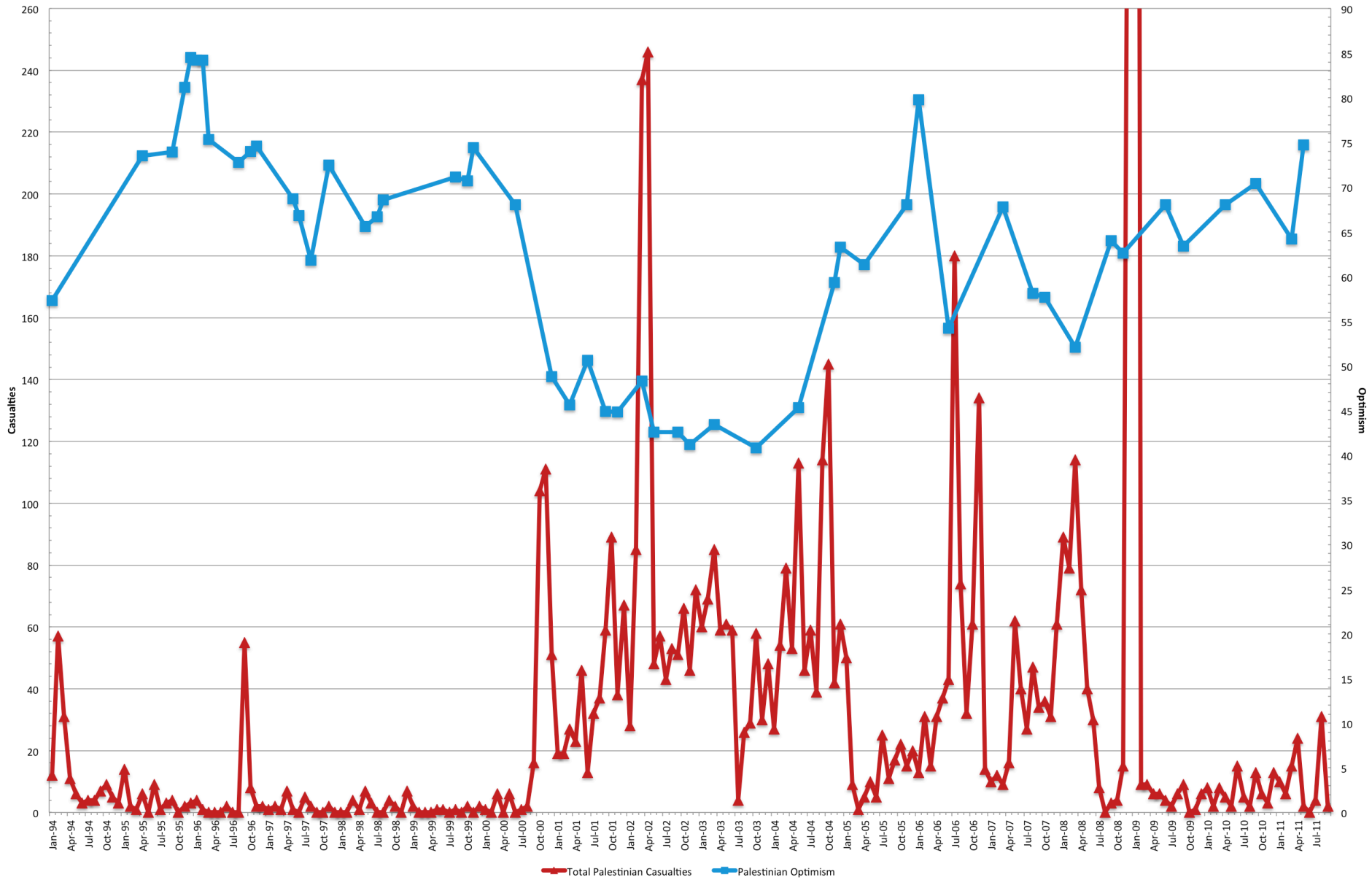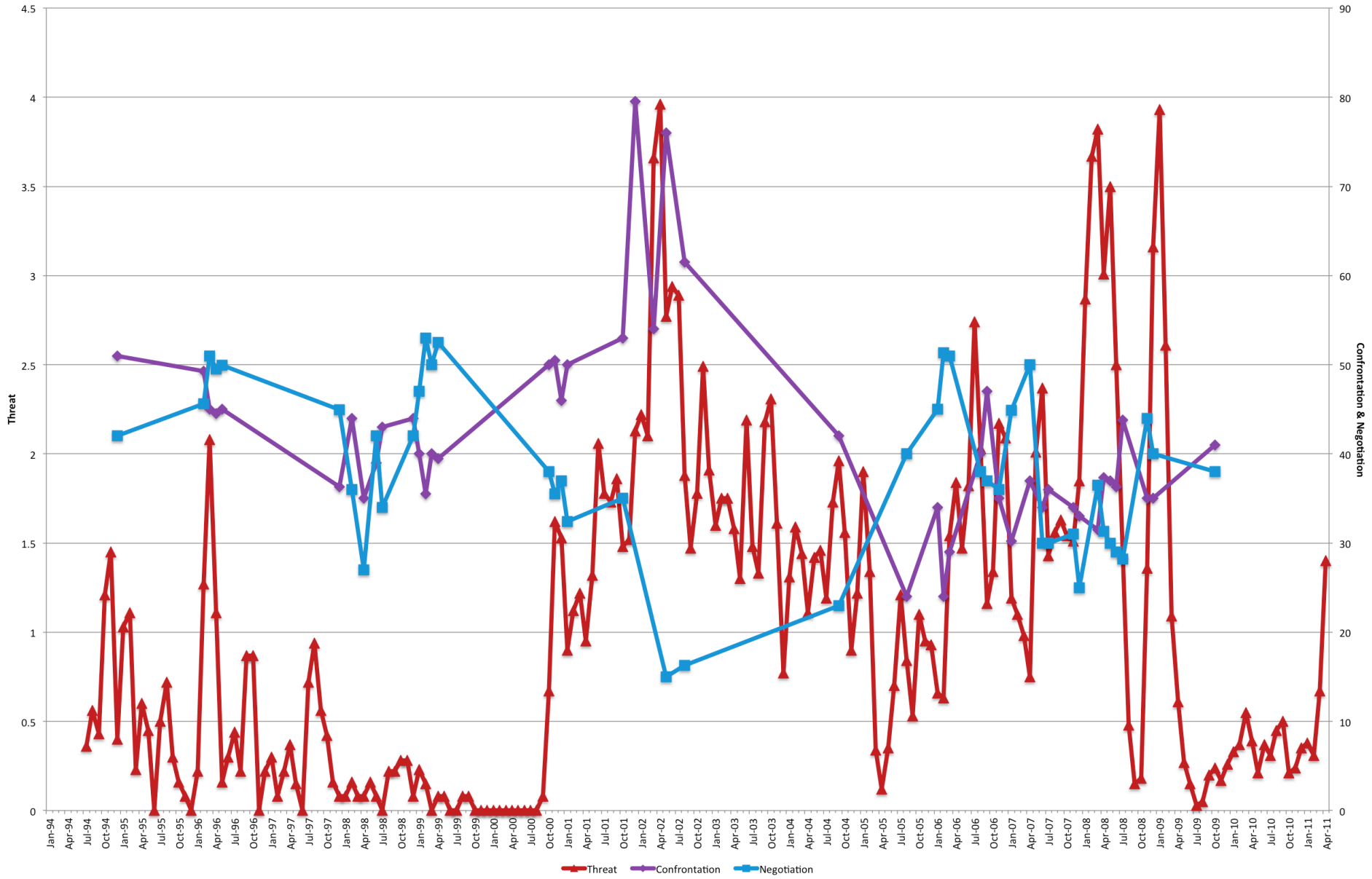Total Palestinian Casualties   Palestinian Support for the Peace Process
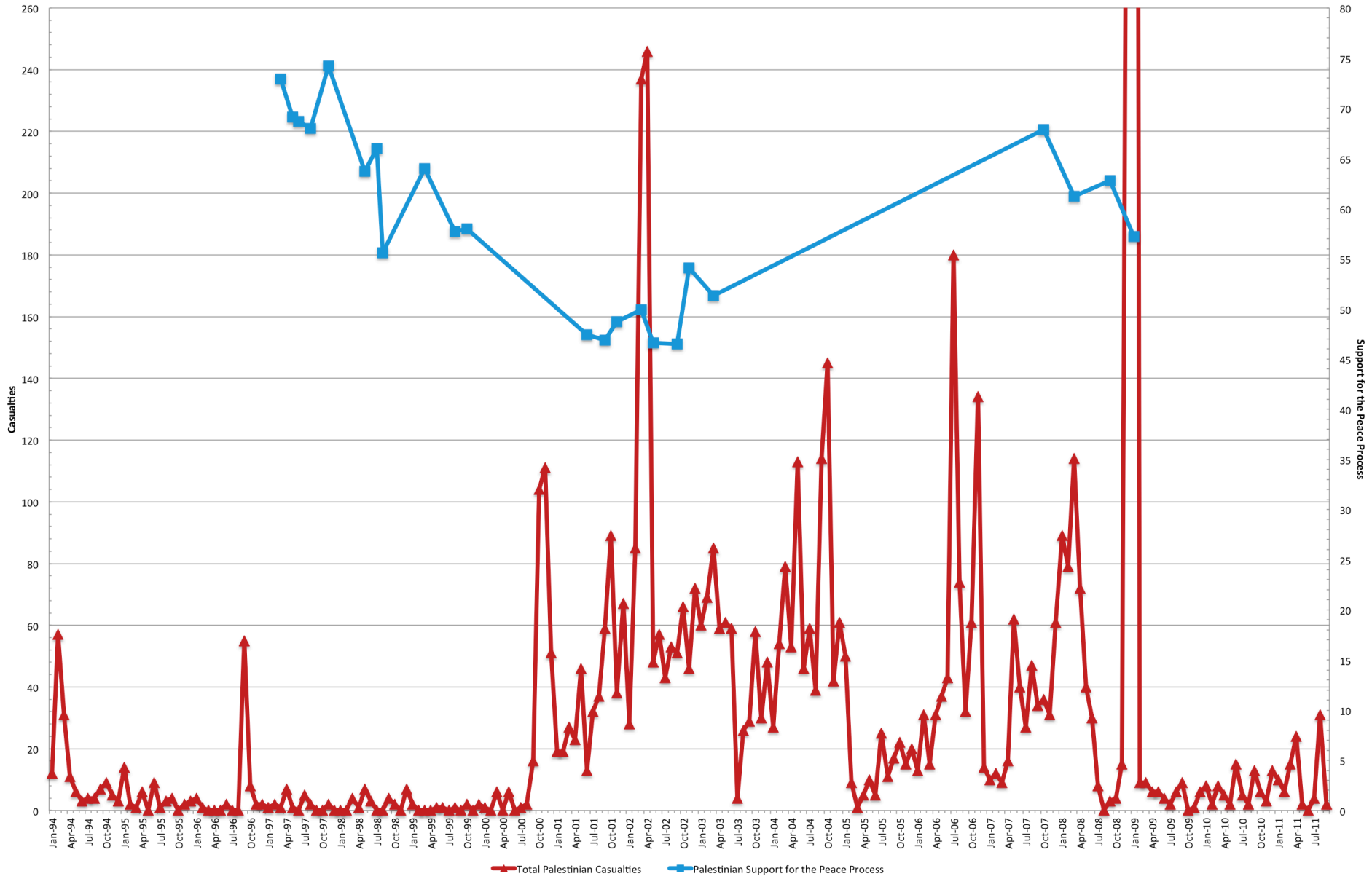
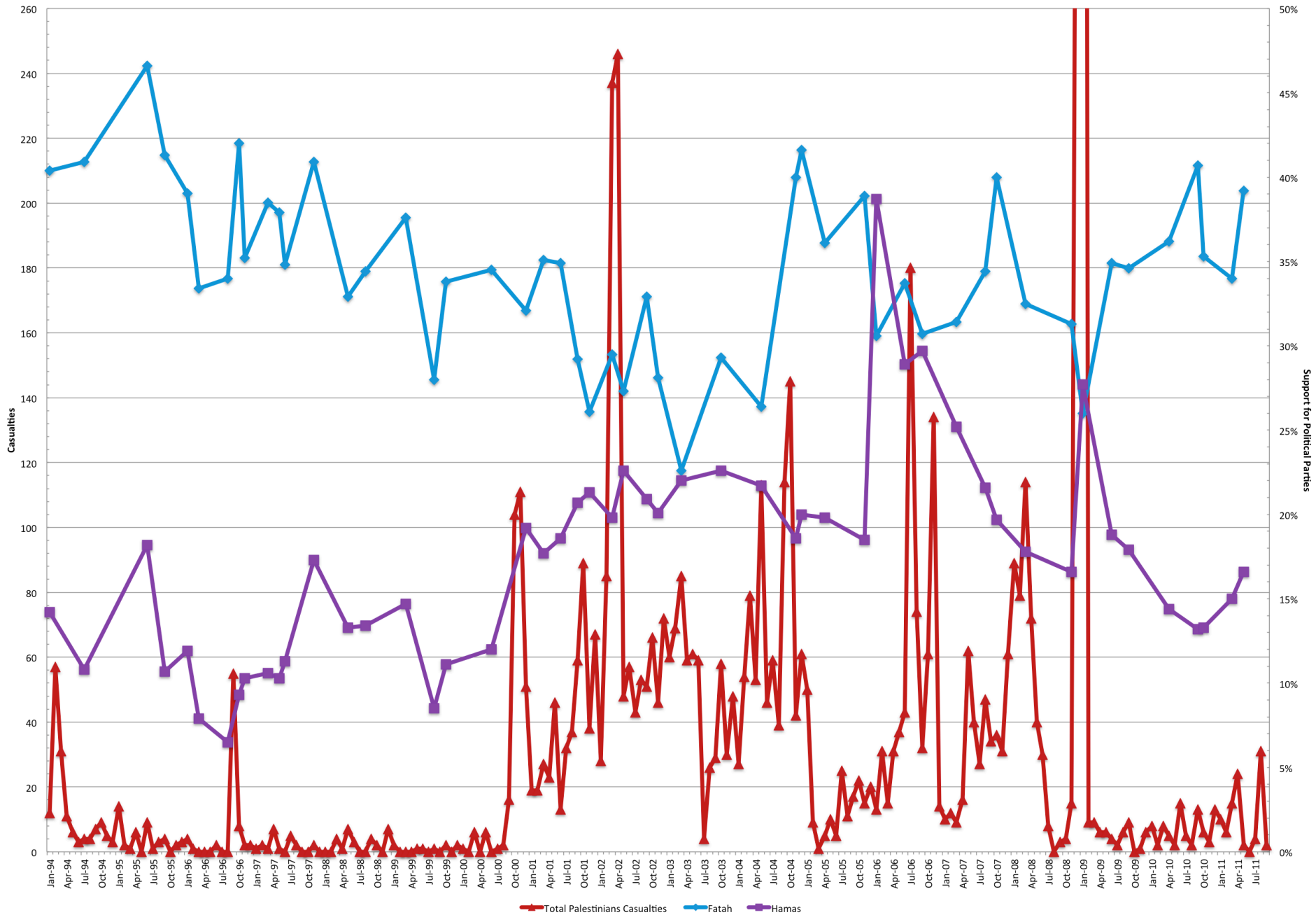Palestinian Casualties & Optimism About the Future

Impact on support for political leaders: negotiation versus confrontation oriented leaders
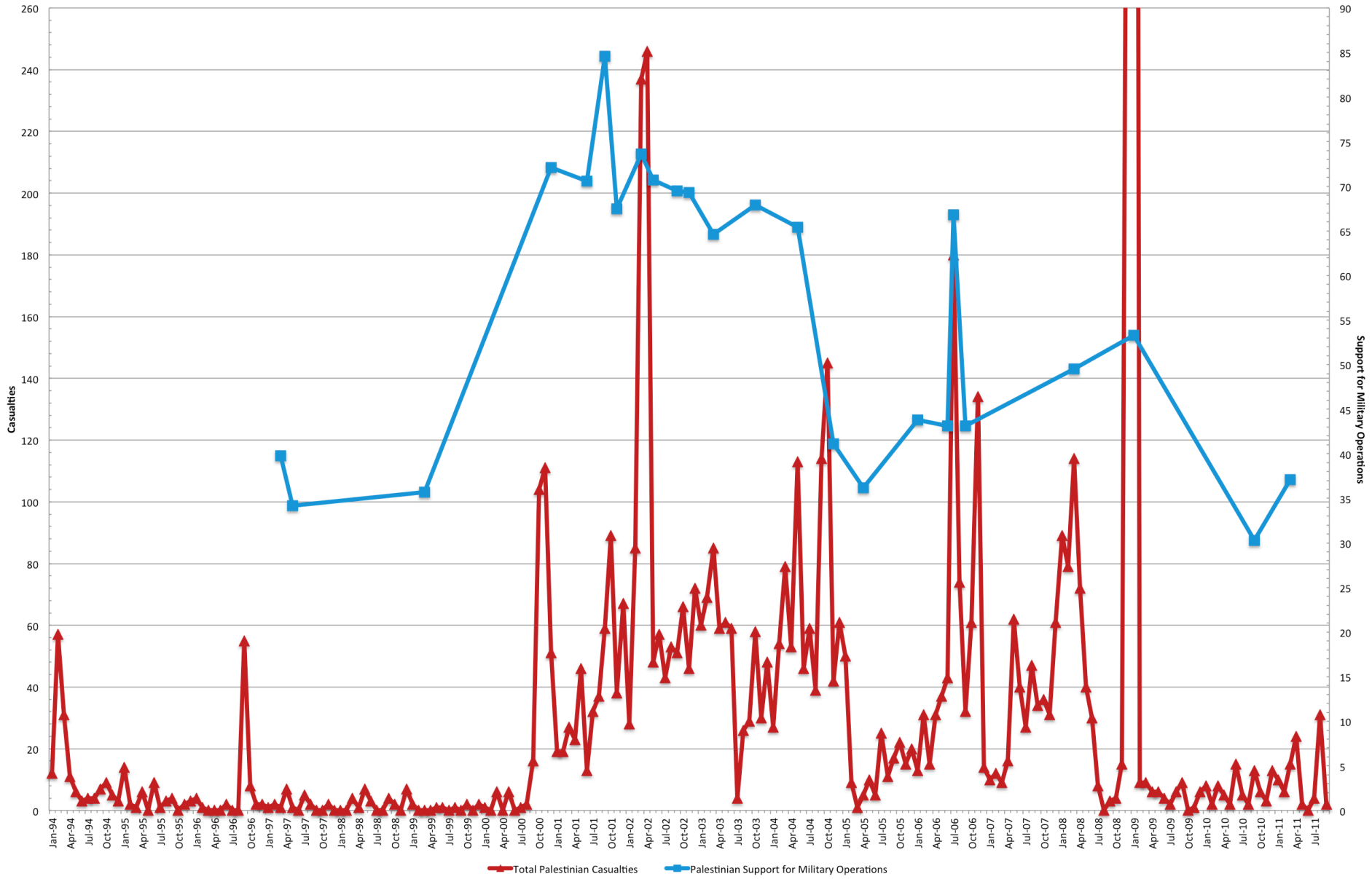
Israeli Leaders & Threat

Palestinian Casualties & Support for Political Parties

Impact on Public Support for Aggressive Actions

Palestinian Casualties & Support for Military Operations

Total Palestinian Casualties   Palestinian Support for Military Operations

The Association between Palestinian Fatalities[1] and Palestinian Public Opinion by Area

Public opinion		Natural log of Fatalities and Public Opinion:		
		All Palestine	Westbank	Gaza
1. Support for the peace process	Pearson r	-.673	-.851	-.477
	Sig. (2-tailed)	.001	.000	.029
	N	22	22	21
2. Optimism about the future	Pearson r	-.762	-.775	-.688
	Sig. (2-tailed)	.000	.000	.000
	N	33	32	33
3. Support for military action against Israel	Pearson r	.660	.801	.606
	Sig. (2-tailed)	.001	.000	.004
	N	21	21	21
4. Support for suicide bombing	Pearson r	.840	.884	.842
	Sig. (2-tailed)	.000	.000	.000
	N	20	20	20

(Pierce, G., Ben-Porat, G., and Kohanteb, S., 2010)

Findings

1. Public opinion has shown dramatic changes in response to levels of external threat.

2. There is a high association between external threat and support for aggressive action against the out-group.

3. There is a high association between external threat and lack of support for the peace process.

4. There is a negative association between general Palestinian optimism and external threat.

5. There is a positive association between external threat and lack of support for negotiation-oriented leadership among Israelis and Palestinians.

6. There is a positive association between external threat support for confrontation-oriented leadership among Palestinians.

Potential Impact on Leadership Decisions

- **Potential restrictions on leaders choosing strategy to respond to threat:**
  - Leader's assessment of:
    - ability to respond to threat
    - cost to leader for not responding to threat
    - benefit to the leader for responding to the threat
  - Competition from the fringe leaders
  - Action of external groups
- **Potential payoffs for leaders:**
  - Actually address threat
  - Keep or increase power (based of perceived effectiveness in protecting one's group)
  - The general population's and a leader's interests can diverge because the career interests of political leaders can be greatly affected by their response to external threat

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i.e., Can we begin to model this type of intergroup behavior?

Game Theoretic Approach

- While this project has evolved beyond the scope of game theory, the approach is heavily influenced by it. We incorporate game theoretic elements of:
  - Players
  - Strategies (aggressive acts versus diplomatic behavior)
  - Payoffs/preferences (utility)
- Our current formulation of the model is as a family of nested games:

Players, Strategy Sets, Utility Functions

- As Players, we two nation-states, described in terms of three agents (players)

  – Mainline Leader

  – Fringe Leader

  – General Public

- The nested representation:

  – On one hand, we look at the interaction of separate nation states or groups (inter-group conflict)

  – On the other hand, we look at the interaction of Mainline leaders, fringe leaders, and the general public within each nation state (intra-group conflict)

Behavior as a sequence of "Events"

- Events are one of the basic components of the simulation. They represent an attack or aggressive action by an actor.

  – Only *mainline leaders* or *fringe leaders* can take such actions (The general public's affect on the system is through their support for specific leaders)

- The probability of an event is determined by three behavioral dimensions:

  – Perceived Success (S)

  – Perceived Threat (T)

  – Vested Interest (V)

Dimensions that Affect Actor Preferences

- Perceived Threat (Affective/Rational)
  - The psychological, subconscious impact of external shock. In theory, perceived threat has an immediate, relatively large influence on decision making. The effect however, decays rather rapidly.

- Vested Interest or Commitment to Conflict (Mostly Rational)
  - Represents personal motivation for perpetuating or working against conflict. It basically depends on public support for conflict and personal reasons for commitment or lack thereof.

- Perceived Success (Rational/Affective)
  - Represents the effect of previous event success and resource levels on perpetuating the conflict. Basically, a history of successful responses and high levels of resources both tend to increase the probability of an actor perpetuating a conflict.

Perceived Threat

- The equation for this term is based on an exponential model

  - The main idea is that each "shock" or attack creates its own jolt of threat. The ultimate term is a summation of perceived threat for all shocks
  - Events cause the initial spikes determined by the perceived threat equation, while time continually lowers the level of threat at a constant rate.

- We theorize that Perceived Threat has the same effect on all actors of a particular union. In other words, fringe leaders, mainline leaders and the public experience the same level of perceived threat for the same shock.
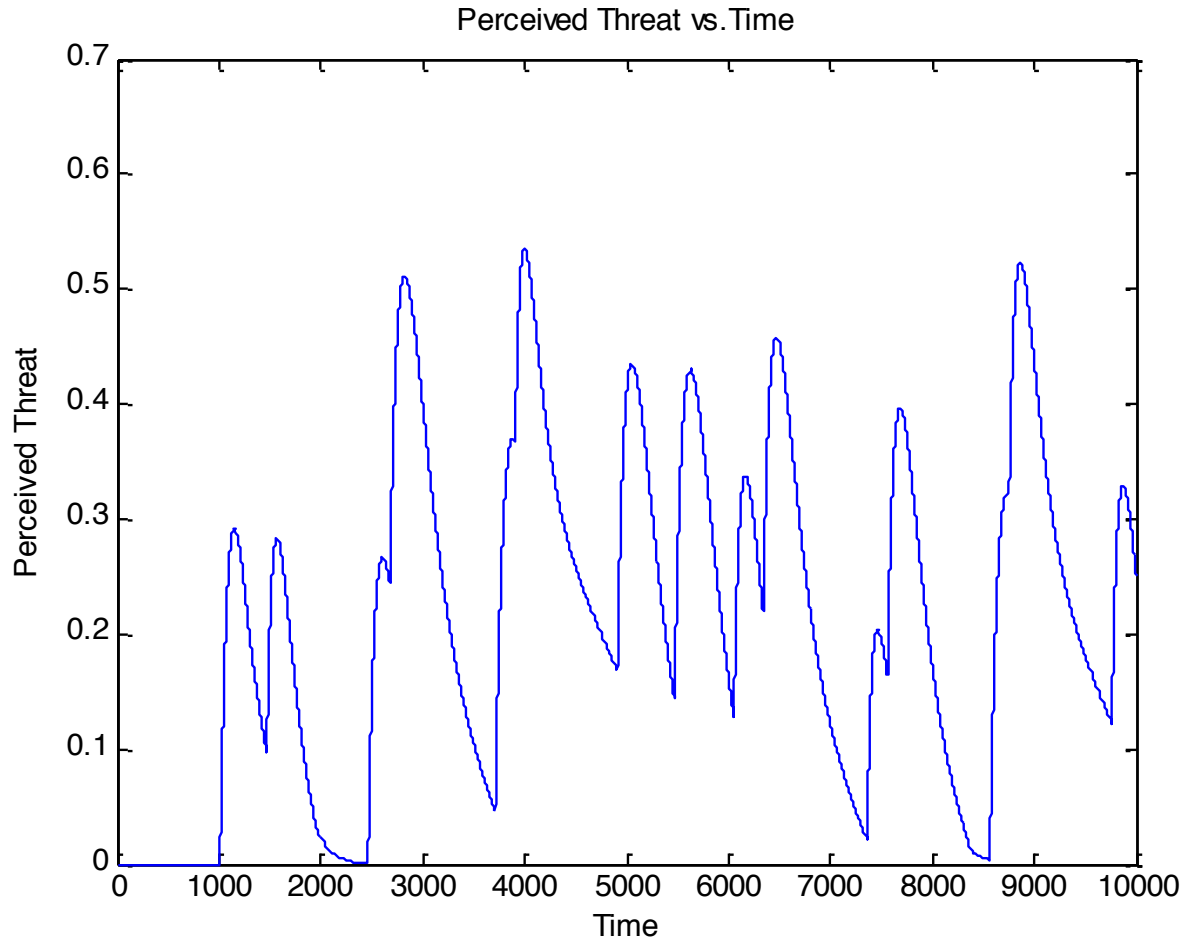
Perceived Threat: The Equation

$$T_i(t_i, x_i) = a_0 * (t - t_i) * e^{a_1 * (a_2 - x_i) * (t - t_i)}$$

$$T(x_1, \ldots, x_n, t_1, \ldots, t_n) = \sum_{j=1}^{n} T_j$$

- t_i = time elapsed since event i
- x_i = event strength of event I
- t = time (with respect to t = 0)
- a_j (j = 0, 1, 2, 3, …) = positive real number constants

Perceived Threat: A Graphical Example

Perceived Threat vs. Time

Public Support for Conflict: The Equation

$$P_A(T) = A * T$$

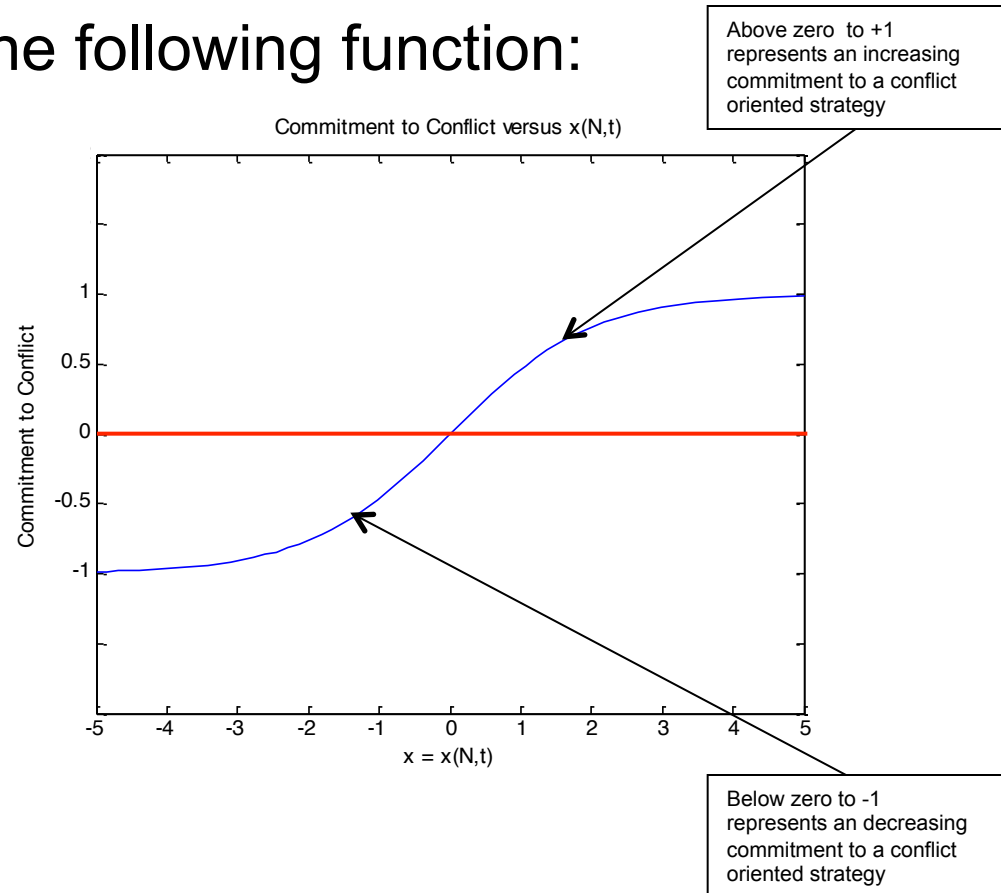- *T* = Perceived Threat as defined above

- *A* = amplification parameter

Vested Interest

- Vested Interest on a informal level represents 'personal' reasons for committing to conflict

- For the simulation, aggressive leadership behavior is roughly proportional to:

  - History of aggressive behavior
  - Current public Support for aggressive action

- Empirical evidence suggests Vested Interest in conflict strategy may be an important driving force in choosing aggressive strategies

Sigmoid Representation

- Changes in perceived Vested Interest (and Percieved Success) are both currently modeled as sigmoid functions of difference equations.

- In particular, we use the following function:

$$f(x) = \frac{2}{1 + e^{-C*x}} - 1]$$

Above zero to +1 represents an increasing commitment to a conflict oriented strategy

Commitment to Conflict versus x(N,t)

Commitment to Conflict

x = x(N,t)

Below zero to -1 represents an decreasing commitment to a conflict oriented strategy

Vested Interest:

$$V(t) = \frac{2}{(1 + e^{-Dv_t})} - 1$$

$$v_t = v_{t-1} + P_t - P_{t-1} + V(t-1) + E_t - 1$$

- ➢ P_t = public support for conflict at time t
- ➢ E_t = 1 if event occurs at time t,
- ➢ E_t = 0 if no event occurs at time t
- ➢ F, D = positive real number constants

Perceived Success

- This represents both the effect of previous strategic success and on current capacity for action on public policy regarding inter and intra group conflict.
- While drastically simplified for the purpose of the simulation, the primary factors involved in Perceived Success at this stage are:
  - Current resource levels
  - Success levels of previous events
  - Time elapsed since earlier events *in interaction with a leaders vested interest in a conflict strategy*

A Computer Simulation: One Approach

- The simulation works as follows:
  - Initial levels of Vested Interest, Perceived Threat, and Perceived Success are set for each actor according to initial parameters.
  - For each actor, a uniform random number is generated from (0,1). If this number is less than the actor's current probability value, then an event is registered and two other uniform random numbers are generated, one representing success value, one representing event strength.
  - At this point, the simulations recalculates Vested Interest, Perceived Threat and Perceived Success for each actor according to the equations described above.
  - Using these values, new probabilities are assigned each actor, time is set ahead by one day, and the random number process repeats.

Simulation Description

- The simulation starts with set of selected parameters:
  - Initial levels of Vested Interest, Perceived Threat, and Perceived Success are set for each actor according to initial parameters
    - These values determine the probability that an actor causes an event during any given day

  - For this version of the simulation, the following quantities can be set a different levels at the onset of the simulation:

    - Resource levels for each actor

    - Initial commitment to conflict for each actor

    - Public Media Amplification

Simulation Model 1:
Low Level Conflict Initial Conditions

Initial Conditions:

Resources:

Mainline A r_0 = 500

Mainline B r_0 = 500

Fringe A r_0 = 100

Fringe B r_0 = 100

Commitment to Conflict:
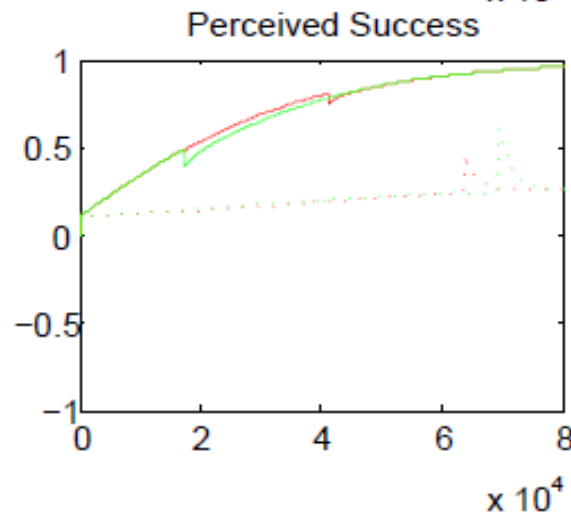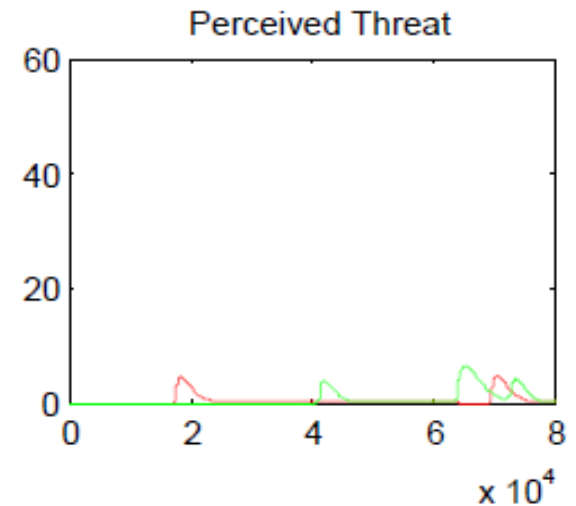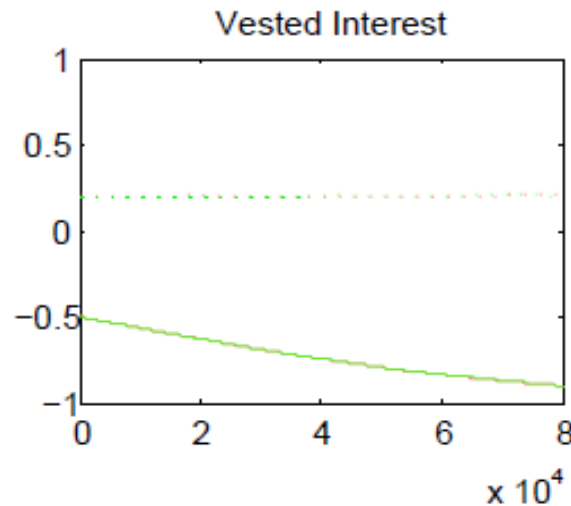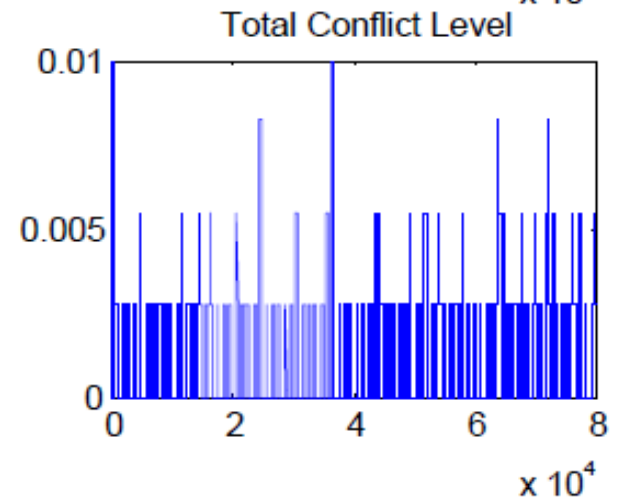
Mainline A v_0 = -.5

Mainline B v_0 = -.5

Fringe A v_0 = .2

Fringe B v_0 = .2

Amplification Constants:

A_A = 1

A_B = 1
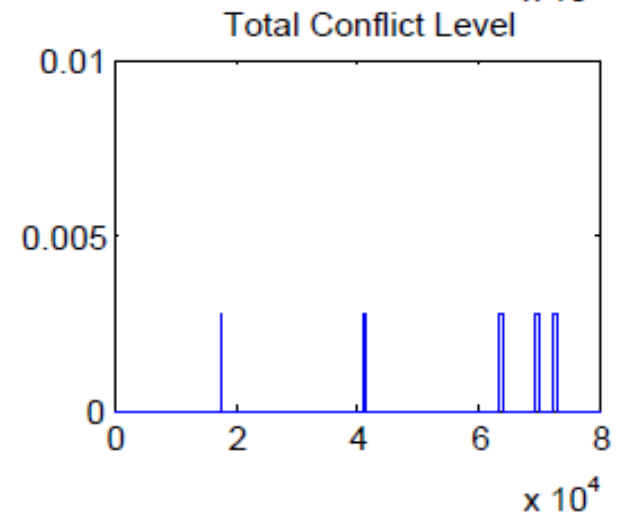
Simulation Model 2:
High Level Conflict Initial Conditions

Initial Conditions:

Resources:

Mainline A r_0 = 500

Mainline B r_0 = 500

Fringe A r_0 = 100

Fringe B r_0 = 100

Commitment to Conflict:

Mainline A v_0 = .0
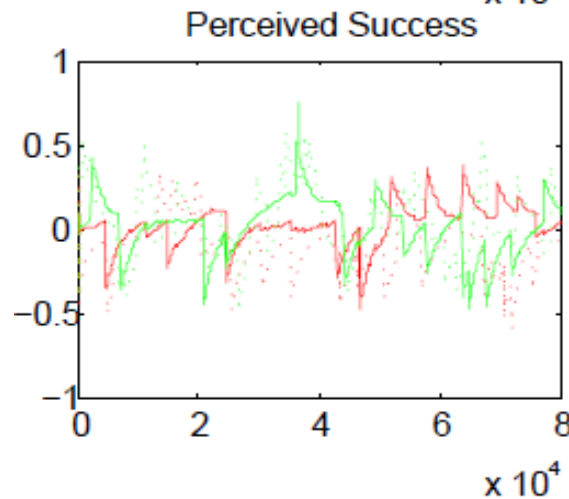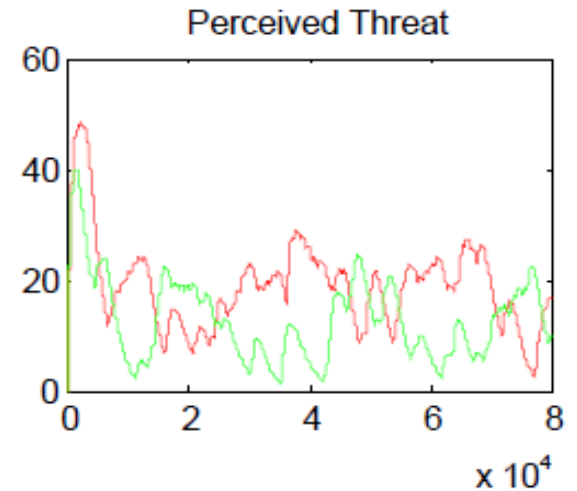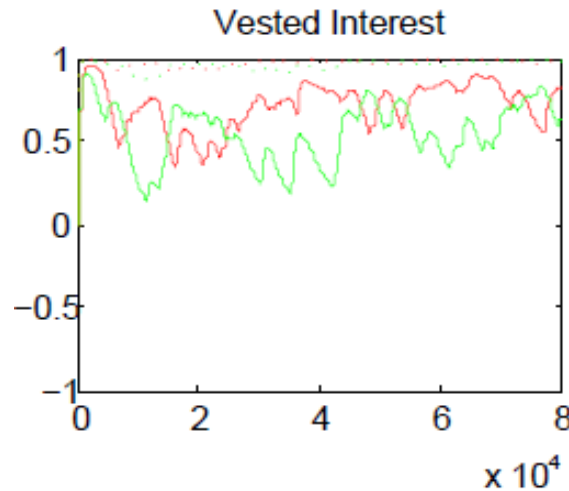
Mainline B v_0 = .0

Fringe A v_0 = .8

Fringe B v_0 = .8

Amplification Constants:

A_A = 10

A_B = 10

Simulation Model Results

1. The results of Simulation Model 1 suggest that lower levels of commitment to conflict combined with a relatively low level of amplification of perceived threat (e.g., media reports) results in fewer attacks(events) initiated by leaders. This in turn results lower levels of perceived threat by the general population, which in turn produces lower levels of support by the public for conflict oriented actions by leaders. As a result, attacks may be launched for unanticipated reasons (randomly generated by the model), but it does not lead to high or consistent levels of intergroup conflict over time.

2. The results of Simulation Model 2 suggest that higher levels of commitment to conflict combined with modest levels of amplification of perceived threat (e.g., media reports) results in more frequent attacks(events) initiated by leaders. This in turn results higher levels of perceived threat by the general population, which in turn produces higher levels of support by the public for conflict oriented actions by leaders. As a result, attacks that may be launched for unanticipated reasons (randomly generated by the model), generate higher and more consistent levels of intergroup conflict over time.

3. Some empirical support for the simulation model results is provided in Sheila Kohentab's, RISE poster, Decision Making under Threat: Israeli and Palestinian Public Opinion,2012).
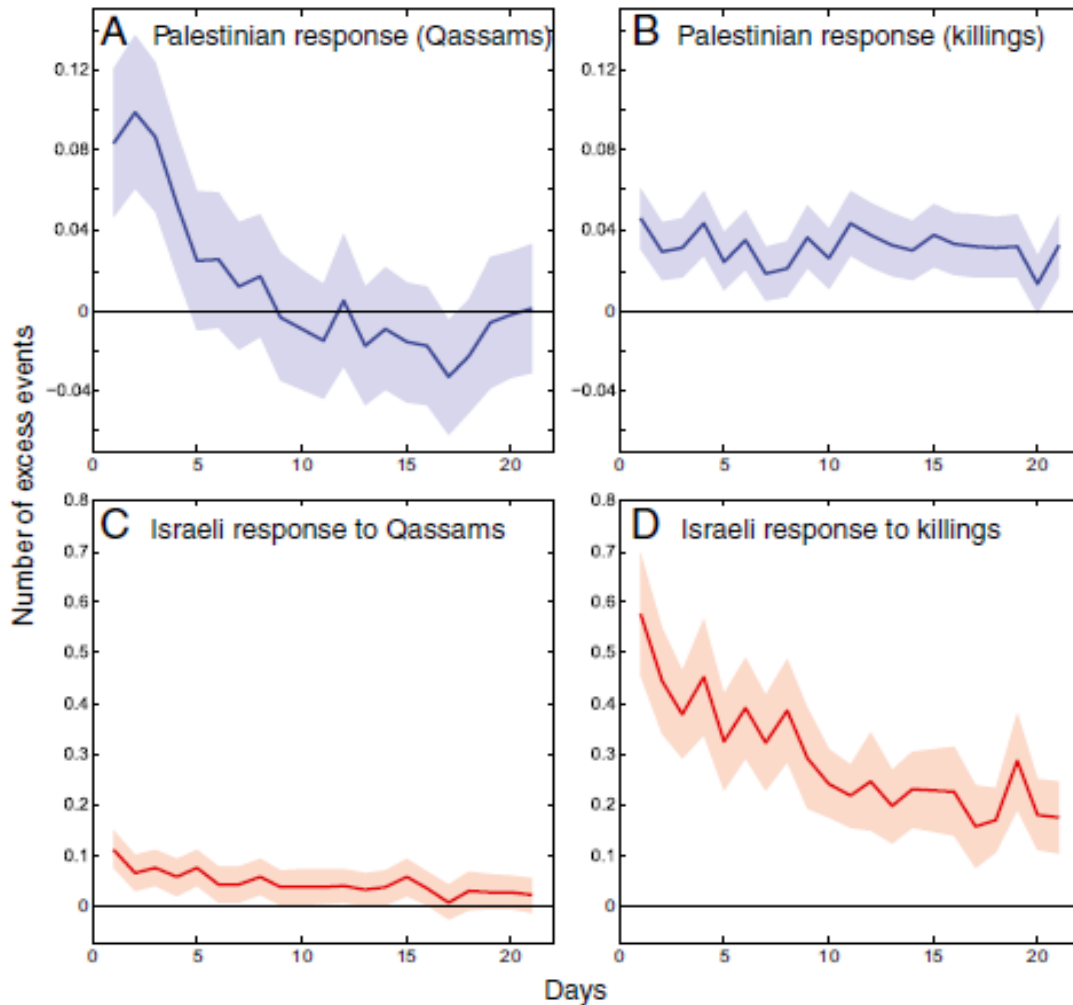
Impulse response functions: levels

Fig. 2. Impulse response functions for number of events (levels). Each graph shows the excess number of attacks by one side following an attack from the respective other side. (*A*) Palestinian response in terms of Qassam rocket attacks to killings of Palestinians by Israel. (*B*) Palestinian response in terms of killings of Israelis to killings of Palestinians by Israel. (*C*) Israeli response in terms of killings of Palestinians to Qassam attacks by Palestinians. (*D*) Israeli response in terms of killings of Palestinians to killings of Israelis by Palestinians.

"Both sides retaliate in the Israeli–Palestinian conflict"
Johannes Haushofera,1, Anat Biletzkib,c, and Nancy Kanwisherd,1 - PNAS

Longer-term Goals of the Project

- To identify social and psychological factors that enable conflict to persist or desist

- Develop a set of relationships and equations that represent the impact of intra-group competition on inter-group conflict

- Develop and integrate the present intergroup conflict model a parallel model of inter–group negotiation

- Build a simulation model that produce a range of outcomes which reflect actors' decisions within the system

Where will we get data to develop and test models

- **Not always easy**
  - Some types of data not collected often or at all
    - e.g., ambitions of leaders, perceptions of success
  - Often data not collected on a regular basis
    - Support for aggression, leaders, etc.
  - Israeli – Palestinian examples
    - See Kohentab and Pierce
- **However new sources of data becoming available**
  - Sentiment analysis of conventional media
  - Sentiment analysis of social media
  - Streams of other sources of electronic data
  - New breakthroughs in psychological research (e.g., FMRIs)

Questions