What Causes Changes in Opinion about the Israeli-Palestinian Peace Process?

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Abstract

In this paper we present a statistical analysis of the factors that drive monthly variations in the aggregate level of support among Israeli Jews for the Oslo Peace Process. Attitudes depend on both the state of the Israeli economy and the intensity of the Israeli-Palestinian conflict since the onset of the *Intifada*. Moreover, different dimensions of the conflict have very different effects on Jewish public opinion. In particular, there is substantial heterogeneity in the response of attitudes to conflict events on either side of the Green Line.

1. Introduction

There is a long history of research on the factors that drive changes in public opinion over time. This research is mainly focussed on party or candidate popularity, as surveyed in Nannestad and Paldam (1994) and Lewis-Beck and Stegmaier (2000). Historically, the main focus of attention has been the impact of economic performance on popularity. However, other dimensions of policy – and in particular after 9/11, security issues – have recently attracted researchers' attention (Gross *et al*., 2004). However, we know little about the way in which public opinion about security issues evolves over time. For example, we do not know how volatile opinion is, or how sensitive it is to specific violent events.

In this paper we present evidence on opinions about security issues in Israel, a country where these issues dominate all others. Public opinion about the appropriate response to the enduring conflict with the Palestinians is well documented, as are the different aspects of the daily violence in Israel and the Palestinian territories since the start of the second *Intifada* in October 2000. These data are the basis for a time-series analysis that shows how sensitive Israeli opinion is to different aspects of the conflict, how quickly opinion responds to short-run variations in conflict intensity, and how much opinion is likely to change in the event of a cessation of violence. We will also look at the extent to which economic conditions color attitudes toward the conflict. Opinions about security policy have been a key factor in the outcome of Israeli general elections (Shamir and Arian, 1999) and in the ability of Israeli governments to pursue a dialogue with their Palestinian counterparts (Mor, 1997; Shamir and Shikaki, 2002). We will see that escalation (or de-escalation) of specific elements of the conflict can have an immediate and substantial impact on opinion, but that there is a great deal of heterogeneity in the way in which opinion responds to these different elements.

2. The Formation of Public Opinion: Conceptual Background

2.1. Public opinion formation and rationality

For many years academics were dismissive of the ability of the general public in matters relating to international relations and international negotiations. Public opinion was thought to be characterised by a lack of interest, information and intellect (Knopf, 1998). This traditional view, known widely as the Almond-Lippmann consensus, proposed the existence of an unstable public opinion largely ignored by elites. However, a number of recent studies (Belanger and Petry, 2005; Holsti, 1992; Isernia *et al*., 2002; Knopf, 1998; Shapiro and Page, 1988) have found evidence for a certain amount of stability in the preferences revealed by surveys of public opinion, which appears to move rationally and consistently with external

events. Even if information is complex and hard to attain, people may use cognitive short-cuts and heuristics to formulate internally consistent opinions. Unstable opinions may just reflect an unstable foreign environment (Peffley and Hurwitz, 1992). In this case, the evolution of Israeli opinions about negotiations within the Palestinians will have a predictable component that can be described by a statistical model.

Previous work on public opinion within Israel has tended to focus on cross-sectional data, and attention has been devoted to correlations of individuals' opinions at a given point in time with their socio-demographic characteristics. Cross-sectional analysis has shown that ethnicity, education, religiosity and political orientation all have a significant affect on attitudes, while the level of religious piety, gender and age have little or no effect (Hermann and Yuchtman-Yaar, 2002; Shamir and Shikaki, 2002; Nachtwey and Tessler, 1998). The results of these papers are consistent with a rational choice framework in which systematic variation in individuals' characteristics correlates with variation in their preferred public policy. One paper dealing specifically with attitudes towards the peace process is Al-Haj *et al*. (1993). This paper analyses Israeli expectations about the consequences of the formation of a Palestinian state for personal security, the economy and the social situation. Only 18 per cent of Jewish Israelis expect their personal safety to improve with a Palestinian state. Nevertheless, there is a strong correlation between these expectations and the level of support for negotiations; economic factors also appear to have some effect.

However, we wish to focus on the factors driving the evolution of opinions over time, rather than on their cross-sectional variation. Very little work has been done in this area. Hermann and Yuchtman-Yaar (2002) introduce a time dimension to the study of Israeli public opinion, using a longitudinal survey. The authors make use of a peace index conducted by the Tami Steinmetz Center for Peace Research, which will also be used in this paper. They find a substantial degree of stability and consistency in Israeli public opinion – more than in American and European opinion – toward a negotiated resolution of the Israeli-Palestinian conflict. Their results suggest a society with well-anchored opinions that react coherently to prevailing conditions. There is a marked difference of opinion between the secular left and the religious right, but both groups' preferences evolve in a similar fashion over time. We can therefore model the dynamics of opinion formation in aggregate without risking any serious aggregation bias in the parameters of our statistical model. While Hermann and Yuchtman-Yaar acknowledge the importance of understanding the dynamics of public opinion, they do not analyse the causes of changes in opinion. Our paper fills this gap, focusing on the security and economic considerations that Al-Haj *et al*. (1993) have shown to be important.

2.2. Factors driving the evolution of public opinion

The evolution of public opinion towards negotiation is likely to be driven by a number of factors. These include firstly, factors that contribute to change in the perceived level of personal and national security; secondly, factors affecting the intensity of a sense of grievance against the Palestinians (or the degree of sympathy for their plight); and thirdly, factors affecting perceptions about the magnitude of the social and economic cost of refraining from negotiation. Of course, individual events may impact on public opinion through more than one of these channels. There follows a short discussion of each channel; we deal with measurement issues in Section 3.

(i) Security

For Israelis considering the possibility of negotiations, particularly those relating to territorial claims and the right of return for Palestinian refugees, "national threat perceptions are existential" (Alpher, 1994), and Israeli society embodies a value system with security concerns at the forefront (Bar-Tal, 1998). Israel's international security situation is gradually changing: the Arab world is no longer monolithic in its opposition to the State of Israel, and more Arab countries are gradually extending diplomatic relations to the Jewish state.[1] Nevertheless, Israel continues to exist in a hostile environment and the threat to security remains important in the collective memory. Consequently, many Israelis still seem to consider the potential costs related to a peace process to be prohibitively high.

Qualitative evidence on the perceived importance of different elements of national security is presented in Rouhana and Fiske (1995). For Jewish interviewees (none of whom were resident in the West Bank or Gaza), the main factor evoking a sense of threat is "attacks and acts of sabotage" in Israel. Other important factors determining the perceived sense of security include the intensity of the Palestinian uprising in the West Bank and Gaza (WBG), and American policy towards Israel. It is in theory possible that an increased sense of insecurity resulting from violence targeted at Israelis will persuade more of them to support the peace process, as a way to improve security. However, the 2001 election victory of Ariel Sharon over Ehud Barak on a relatively hawkish ticket, following the commencement of the second *Intifada* in 2000, suggests that this is unlikely.[2] It is more probable that increased insecurity will reduce support for negotiations, security being the price Israelis think the

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[1] Israel now has full diplomatic relations with three Arab states (Mauritania, Egypt and Jordan) and a number of other Muslim states.
[2] Further, Berrebi and Klor (2004) find that support for the right-wing political parties in Israel, which are associated with more draconian policy towards the Palestinians, is increasing in the intensity of attacks on Israeli civilians.

government ought to demand of Palestinians in return for substantial dialog. It remains to be seen what type of violence leads to variations in the level of support for the peace process. Israeli casualties occur in a number of contexts, including suicide bomb attacks across Israel, fire fights between Israeli troops and Palestinians, and the escalation of tension between Jews and Palestinians in WBG. The sense of threat felt by the average Israeli might depend on short-run variations in the magnitude of some, all or none of these different types of violence.

Questions of national security overlap with questions about confidence in the Israeli government. All Israeli governments have remained in negotiation with the Palestinian Authority to some degree, and even Likud prime ministers can be subjected to intense criticism from the right for adopting too dovish a stance towards the Palestinians. Those on the Israeli right may well interpret the peace process as a government policy. The level of support for government policy in general may depend on the government's perceived performance with respect to security, and on the government's perceived performance in other areas of life. There is some evidence (Ludvigsen, 2005) that variations in the popularity of successive Israeli governments are correlated with economic factors (particularly inflation), but also with Israeli casualties. It is therefore possible that variations in economic performance will impact on support for the peace process, through its impact on support for the government. Indeed, there is already cross-sectional survey evidence (Nachtwey and Tessler, 1998) that general confidence in the government is associated with stronger support for the peace process. The same paper shows that those satisfied with their economic position are more likely to favour the peace process.

(ii) Grievance and sympathy
The discussion of security issues supposes a rationale for support for (or opposition to) the peace process that is based on entirely pragmatic, utilitarian arguments. This does not imply that attitudes are entirely independent of views about the "fairness" of more or less conciliatory policies towards the Palestinians. Some Israelis might support a tit-for-tat strategy by the government – responding to Palestinian attacks by pursuing a less conciliatory policy – as a result of dispassionate game-theoretic arguments. However, such a strategy might equally be supported by those for whom Palestinian attacks violate inherited fairness norms. Different types of conflict event might be associated with differing degrees of outrage. On the other hand, support for the peace process could increase after conflict events in which some or all of the Palestinian casualties are perceived by some Israelis to be innocent victims, again because fairness norms have been violated.

(iii) Cost

Interwoven with security concerns about the conflict are the direct social and economic costs. In Israel, these include not only death and injury suffered in Palestinian militant attacks, but also the substantial amount of time devoted to military service by large numbers of Israeli reservists, the psychological effects of military service on soldiers and their families, and the consequences for trade and international relations of negative international public opinion among those sympathetic to the Palestinian cause. Riots, demonstrations and violence in WBG entail a substantial cost for Israelis, even in the absence of suicide bomb attacks in Israeli cities. There is also a growing literature that identifies specific economic costs relating to the conflict. The conflict impacts on tourism (Fleischer and Buccola, 2002), savings (Fielding 2003a; Eckstein and Tsiddon, 2004), investment (Fielding, 2003b) and the stock market (Eldor and Melnick, 2004). Eckstein and Tsiddon estimate that the *Intifada* cost Israel 10 per cent of its output per capita in its first three years. Both Al-Haj *et al.* (1993) and Nachtwey and Tessler (2002) find a high correlation between the belief that peace will be of economic benefit and support for reconciliation with the Palestinians.

Evidence from other parts of the world suggests that public support for military action is sensitive to the magnitude of war casualties (Mueller, 1973; Gartner and Segura, 2000), and that people's commitment to a conflict is proportional to the psychological toll it exerts on them (Nancic and Nancic, 1995), although the link between costs and opinion may be weaker when national survival is threatened (Gartner and Segura, 1998). Such factors may play some role in the formation of public opinion in Israel. Moreover, past research has shown that the impact of conflict intensity on support for military action depends on the temporal and geographical proximity of casualties, so sensitivity to a particular death can vary regionally within a country (Gartner *et al.*, 1997). In the case of Israel, casualties in WBG may have a different effect on the perceived cost of the conflict than casualties in Israeli cities.

3. Measurement of Israeli Opinion and its Correlates

In this section we discuss how we quantify Israeli support for the peace process, and also how we measure the factors likely to drive changes in the degree of support. Section 4 then presents the statistical model based on these measures.

3.1. Measurement of Israeli opinion

Since June 1994 the Tami Steinmetz Center for Peace Research has undertaken a monthly survey of opinions on a range of issues related to the Israeli-Palestinian conflict (Yuchtman-

Yaar and Hermann, 2005).[3] The survey is the basis of a monthly "Oslo Peace Index", which is a composite of responses to the following two questions:

1. What is your opinion on the agreement that was signed in Oslo between Israel and the PLO (Agreement of Principles)?
2. Do you believe or not believe that the Oslo Agreement between Israel and the PLO will bring about peace between Israel and the Palestinians in the coming years?

These questions provide a direct insight into people's opinions with regard to reconciliation. The index is normalised so that it ranges from 0-100 (this linear transformation preserves the relative differences in scores), with one hundred indicating full support and optimism[4]. This series, unlike any other single index in the surveys, is available continuously since the beginning of the survey until a break in December 2004. One version of the index aggregates across both Arab and Jewish Israeli respondents, another reports an aggregate for Jewish respondents alone. Given the large differences that are likely between the factors influencing Arab and Jewish opinion, our paper focuses on the determinants of the index for Jewish respondents only. This index (J) is illustrated in Figure 1.

Figure 1 shows that with the start of the *Intifada* there was steady erosion in support for the peace process. Before the *Intifada*, support ran at over 40%; since then it has been much lower, at times falling close to 25%. With the partial cessation of violence in 2004, the index started to rise again, although it has not attained its pre-*Intifada* levels.

The two questions in the survey concern slightly different aspects of public attitudes towards the peace process. Information from the surveys, where the percentages of positive responses to each question are reported separately, shows that the mean score for the second question is substantially lower than the mean score for the first. While some Israelis support the idea of a negotiated settlement, belief in its occurrence does not match this support. However, the correlation between the responses to the two questions is consistently high (Hermann and Yuchtman-Yaar, 2002).

The two specific elements of public opinion that are addressed in the index are belief in the feasibility of the peace process and support for the process. Inevitably (and in line with

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[3] These surveys can be found online at http://spirit.tau.ac.il/socant/peace/.
[4] The number of respondents varies slightly but is around 580 adults in total. The survey includes responses from Israelis in the West Bank and Gaza and in the kibbutzim. The sampling error for a sample of this size is about 4.5% in each direction. Although there is no direct evidence on the whether the sample is representative of wider society; the work of Hermann & Yuchtman-Yaar (2002) suggests that the respondents do constitute a random sample of the population.

the correlations provided in Al-Haj *et al.*, 1993), the two opinions are inextricably related. If there is a belief that the process can create peace, then support for the process increases.

Our statistical model seeks to explain variations in the Peace Index that are related to the changing economic and political environment. As discussed above, variations in the intensity of different dimensions of the conflict might affect Israeli opinion for a number of reasons. Some events might evoke a greater sense of insecurity among some Israelis, or a sense of grievance against Palestinians; this will tend to reduce support for the peace process. Others events might evoke sympathy for Palestinians among some Israelis, or a perception that the persistent social and economic costs of the *Intifada* justify more negotiations; this will tend to increase support for the peace process. The economic environment may also be important, because perceptions about government performance with respect to the economy could influence the general level of trust in government policy, including the government's decision to remain in dialogue with the Palestinian Authority. In this case, worsening economic performance may lead to a reduction in support for the peace process. The statistical model makes use of a number of indicators of economic and political conditions that are likely to be correlated with aggregate attitudes, as reflected in the Peace Index. These indicators are listed below.

3.2. The correlates of aggregate attitudes: conflict intensity

International media interest in the Israeli-Palestinian conflict means that individual conflict events are reported in great detail by many different organisations. While there is substantial disagreement about how to classify casualties in the conflict – for example, how to disaggregate Palestinian casualties into combatants and non-combatants – the differences between the total casualty figures reported by different organisations – for example by the Israeli Defense Force (IDF) and the Palestinian Red Crescent – are very small. In this paper, we rely mainly on figures reported by the Israeli human rights organisation B'Tselem, since this organisation reports the widest variety of figures within a consistent framework.[5] Substitution of data from other sources (for example, the IDF) makes no substantial difference to our results. We will be using data on actual casualty figures, rather than figures reported in certain media outlets. While international reactions to the conflict might depend on how it is reported in the international media, Israelis themselves are much more likely to be aware – or to have the opportunity to be aware – of what is actually happening.

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[5] The figures reported by B'Tselem are not contested by other organisations. All our fatality statistics come from this source, which can be found on-line at http://www.btselem.org/English/index.asp.

B'Tselem reports various conflict fatality statistics disaggregated according to the nationality of deceased and the location of death. Different casualty series represent different types of aggression, and are likely to have different effects on Israelis opinions because they impact on security-grievance-sympathy-cost perceptions in different ways. For example, civilian-on-civilian deaths in WBG generally arise as a result of local grievances, and often result from the escalation of frictions between Jewish and Palestinian residents. By contrast, deaths in Israel are usually caused by planned attacks as part of political campaigns. We use the following monthly casualty time-series, summarised in Table 1 and illustrated in Figure 2.

(i) Jewish Israeli civilians killed by Palestinians,[6] excluding fatalities in WBG (I)

This is a measure of the threat to Israelis' personal security. The greatest direct threat to security for Israelis takes the form of planned attacks by Palestinian militant organisations, of which suicide bombings are the most visual.[7] During the sample period there were a total of 430 fatalities of this type, with a peak of 66 in 2002m3 preceding Operation Defensive Shield. We expect this series to be negatively correlated with the Peace Index, as it represents a direct security threat and a cause of grievance that makes Israelis less willing to negotiate. Although it is possible to disaggregate Israeli civilian fatalities by various demographic characteristics – for example, by age – we do not use any such disaggregation in our statistical model. The identity of those killed by a particular suicide bomb is largely a matter of chance, and unlikely to have much impact on the average Israeli's sense of grievance.

As can be seen in Figure 3, 2002m3 represents a very atypical month in terms of the number of suicide bomb attacks (17 in total; the next largest figure is seven) and in the number of Israeli civilian casualties. It is possible that in such an unusual month there is some non-linearity in the impact of Israeli civilian casualties on the Peace Index. For this reason, we will include a dummy variable for 2002m3.

(ii) IDF personnel killed by Palestinians (S)

This measure includes IDF personnel killed in all locations. It could impact on Israelis' sense of personal security and grievance, because so many serve (or have relatives who serve) as reservists. In this regard, its effect is likely to be similar to that of Israeli civilian casualties. It is even possible that the deaths of large numbers of IDF personnel fuel security concerns even more than suicide bomb attacks. For these reasons, we would expect a negative correlation

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[6] The figures include a small number of attacks by Arab Israelis and foreign nationals.
[7] Suicide bombs account for around half of all Israeli deaths, but only 1% of all violent incidents (Yom and Saleh, 2004).

between the Peace Index and IDF fatalities. On the other hand, high military casualties may affect perceptions about the ability of the IDF to control proceedings, and hence the likely cost of the conflict. It is possible that this mitigates the negative correlation. The total number of IDF personnel killed in the sample period is 295.

(iii) Jewish Israeli civilians killed by Palestinians in WBG (IT)

It is possible that casualties in Jewish settlements in WBG (a total of 210 in our sample period) impact on the Peace Index differently from other civilian casualties. Some Israelis may have less sympathy for the occupants of the settlements than they do for their other compatriots, so that casualties on the other side of the Green Line evoke less of a sense of grievance. For Israelis who never cross the Green Line, there is also likely to be much less of a personal security threat. Moreover, fighting around the settlements is likely to remind some Israelis of the cost of retaining territory in the WBG. For these reasons, we have no *a priori* prediction of the sign of the effect of this variable on the Peace Index.

(iv) Palestinian adults killed by the IDF in WBG (PA)

Palestinian deaths in WBG provide an indicator of the intensity of the uprising. For a given level of Israeli casualties, variations in Palestinian casualties may impact on the perceived cost of retaining territory in WBG. An increase in Palestinian casualties may also evoke a sense of sympathy for Palestinians, although this is less likely for adult deaths than it is for child deaths, if there is a perception that the majority of adults are combatants and the majority of children are non-combatants. These factors suggest a positive impact on the Peace Index. However, an increase in the magnitude of the uprising may intensify the perception of a security threat felt by Israelis, which will tend to mitigate any positive correlation. The total number of adult Palestinian deaths in the sample period is 2,419.

(v) Palestinian children killed by the IDF in WBG (PM)

The same comments apply here as in the case of Palestinian adult deaths, except that some Israelis may have more sympathy for child deaths, so a larger positive correlation with the Peace Index is possible. There are 605 Palestinian child deaths in the sample period.

(vi) Injuries in WBG (INJ)

This is an alternative measure of the intensity of the uprising. Certain periods, especially at the very beginning of the *Intifada*, have been marked by relatively large numbers of Palestinian demonstrations and riots, but not especially large numbers of deaths. These

periods could generate similar reactions among Israelis as periods of high Palestinian fatalities. The statistical significance of this variable would indicate that conflict deaths alone are not the only dimension of the *Intifada* to impact on Israeli opinions about the peace process. The total number of reported injuries in the sample period is 28,211.[8]

3.3. The correlates of aggregate attitudes: macroeconomic indicators

If macroeconomic performance influences attitudes towards the peace process, then the Peace Index might vary over the business cycle. Poor macroeconomic performance (high inflation, high unemployment) might weaken support for the government. It is possible that dissatisfaction with current public policy in one area (macroeconomics) is contagious, and generates dissatisfaction with policy in other areas, in particular the Peace Process. A limited number of monthly business cycle indicators are available from the Central Bureau of Statistics on a monthly basis. We make use of one main indicator: the monthly inflation rate (*INF*). We also have data on Israeli unemployment (*U*); however, it is not obvious that Israeli unemployment data are reported consistently over the whole sample period.[9] Results of statistical analysis using unemployment data are discussed in the next section, but the main results incorporate inflation as the key monthly macroeconomic indicator.

3.4. The correlates of aggregate attitudes: significant events

The Peace Index might respond to specific national and international events. The impact of such an event can be captured by adding to our regression equation a dummy variable for the month in which the event occurred. We limited our attention to a number of key events; otherwise, the risk of data-mining is very high. The following events were considered.

(i) The 9/11 attacks in America (2001m9)

The general consensus within Israel was that the 9/11 attacks would have a favourable impact on the peace process (Yuchtman-Yaar and Hermann, 2001). Following the attacks, there was an increase in international interest in the politics and conflicts in the Middle East. Many Israelis and Americans drew parallels between the 9/11 attacks and suicide bomb attacks in Israel, which could create a perception that Israel would receive more support from America

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[8] Injuries are predominantly from live ammunition, bullets, tear gas and bomb fragments/shrapnel. The data comes from Palestine Red Crescent Society field posts and Emergency Medical Services operations, available online at http://www.palestinercs.org/.

[9] In January 2002 and January 2003, changes were introduced to the unemployment insurance law and the conditions of entitlement to unemployment benefits (qualification period, entitlement days and the level of payment). Data for 2003m11-2004m2 are missing, so observations for these months have to be interpolated.

than otherwise in any negotiations with the Palestinians. In this case, there would be a positive coefficient on this dummy.

(ii) Operation Defensive Shield (2002m4)

This was a very large offensive by the IDF intended to destroy paramilitary networks thought to exist in Palestinian Authority controlled areas. This followed the peak in suicide bomb attacks noted above. The Israeli public in general felt that the operation increased Israel's security, but that it may have harmed the peace process (Yuchtman-Yaar and Hermann, 2002). In this case, there would be a negative coefficient on this dummy.

(iii) The commencement of the war in Iraq (2003m3)

The Iraq war was expected to change the political situation in the Middle East. Israelis appeared to view the American victory in Iraq as a positive step towards a solution to their local conflict (Yuchtman-Yaar & Hermann, 2003). In this case, there would be a positive coefficient on this dummy.

(iv) American diplomatic intervention (2004m4)

In April 2004, President Bush wrote a letter of support for the Israeli government's planned withdrawal from the Gaza strip, and offered support for the maintenance of other settlements in the West Bank. In the same month, the plan for the withdrawal from Gaza was defeated in an internal vote in the ruling Likud Party. This dummy reflects both a statement of American support for Israel, favouring the peace process, and internal divisions in the Government, a destabilizing influence that might militate against the peace process.

(v) The Rafah operation (2004m5)

May 2004 saw a major demolition of houses in Rafah (in the Gaza strip) by the IDF, part of a government-approved plan to expand the buffer zone in the area. The action was controversial abroad, but also within Israel, since it represented a step towards a unilateral withdrawal from Gaza. Given the divisions among Israelis about these plans, we have no priors about the sign on the coefficient on this dummy.

Only the final two event dummies (for 2004m4-5) were ever statistically significant in any regression specification. The tables below report regressions incorporating just these two; further details are available on request.

4. Modelling the Peace Index

Table 1 lists the time-series variables appearing in our statistical model, along with the acronyms used in subsequent tables. The data are measured monthly over the period 2000m10-2004m11. Our statistical analysis is designed to explore the ways in which the evolution of support for the Peace Process (*J*) depends on Israeli civilian fatalities (*I*, *IT*), IDF fatalities (*S*), Palestinian casualties (*PA*, *PM*, *INJ*), economic conditions (*INF*, *U*) and specific events (*M*0, *M*1, *M*2). Except for the inflation rate (*INF*), all the variables appear to be approximately log-normally distributed. Typically, there are a few months in which casualties are very high, and the modal casualty level is lower than the mean. For this reason we use logarithmic transformations of the series: ln(*x*) for variables that are always strictly positive, and ln(1+*x*) for variables that are sometimes equal to zero. Parameters then indicate the percentage change in support for the Peace Process that can be expected with a percentage change in one of the explanatory variables. The inflation rate – that is, the change in the log of the price level – appears to be approximately normally distributed, so no transformation of this variable is necessary.

Table 2 provides some descriptive statistics for our variables. It can be seen that the typical variation in our dependent variable, ln(*J*), is rather smaller than the variation typical of most of the explanatory variables. During the *Intifada* support for the Peace Process has always lain between 25% and 45%, despite some large – but temporary – swings in the level of conflict intensity. This may indicate that support is not very sensitive to conflict intensity, or that the effect of different dimensions of the conflict offset each other. On the other hand, it may indicate that opinion is slow to respond to changes in conflict intensity, so that only a permanent cessation of violence would make a large difference. Our statistical analysis will shed light on these issues. Table 2 also indicates Dickey-Fuller test statistics for each variable (Dickey and Fuller, 1981). The test statistics indicate that all the variables are stationary, so we do not need to resort to cointegration analysis when fitting our model.[10]

Table 3 records the unconditional correlations between the variables of interest. There are two main points of interest in the table. Firstly, although the correlations between the different conflict intensity indicators are almost all positive, the correlation coefficients are not that large. For example, monthly variations in the number of IDF fatalities are not very highly correlated with variations in the number of civilian casualties. It is important to

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[10] In all cases except that of ln(*J*), the null that the variable is integrated I(1) can be rejected against the alternative that it is I(0) at the 1% level. The test statistic for ln(*J*), the dependent variable, lies right on the 5% boundary. If ln(*J*) were indeed I(1) then we should not see a robust relationship between this variable and the conflict intensity series, so we are confident that our stationary model is appropriate.

remember that these are high-frequency data: of course the outbreak of the *Intifada* in October 2000 led to a steep rise in casualties of all kinds, but since that time short-term changes in different dimensions of the conflict appear not to be closely connected. Secondly, none of the individual series is very highly correlated with our dependent variable, ln(*J*). No one conflict intensity series explains much of the variation in support for the Peace Process. This suggests either that support is unrelated to variations in conflict intensity, or that it responds to different dimensions of the conflict in complex and heterogeneous ways.

Our statistical model is designed to show what factors explain changes in the level of support for the Peace Process. It is important that we distinguish between the short-run and long-run consequences of changes in the political and economic environment, so we will work with a dynamic model of the form

$$\beta_0(L)\ln(J)_t = \ \beta_1(L)\ln(J)_t + \beta_2(L)\ln(1+I)_t + \beta_3(L)\ln(1+IT)_t + \beta_4(L)\ln(1+PA)_t + \tag{1}$$
$$\beta_5(L)\ln(1+PM)_t + \beta_6(L)\ln(1+S)_t + \beta_7(L)\ln(INJ)_t + \beta_8(L)INF_t +$$
$$\alpha_0 \cdot M0_t + \alpha_1 \cdot M1_t + \alpha_2 \cdot M2_t + u_t$$

The $\beta_i(L)$ are lag polynominal operators: $\beta_i(L)x_t = \sum_{r=0}^{r=R}\beta_{ir} \cdot x_{t-r}$. The α_i are scalar parameters and u_t is an error term. The unrestricted model is fitted with a lag order (*R*) equal to two; this equation is reported on the left hand side of Table 4. At least one lag of each variable has a β coefficient significantly different from zero.[11] However, many individual lags are statistically insignificant, which suggests that the model is over-parameterized, and that restricting its dynamics will lead to a more efficient estimate. For this reason we report a restricted version of the regression on the right hand side of Table 4. Here, some statistically insignificant coefficients have been set to zero. The choice of restrictions is based on the *PcGets* algorithm (Hendry and Krolzig, 2004); further details are available on request. The diagnostic test statistics for the restricted model reported in Table 5 and the recursive estimates of its parameters illustrated in Figure 4 suggest that the model is robust.[12] The simulations discussed below are based on the restricted model.

Individual parameters in the dynamic model are not in themselves very informative. We interpret the model first of all by computing the steady-state coefficients implicit in Table

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[11] *IT* is an exception. However, the lags of this variable are jointly significant at the 5% level.

[12] The recursive estimates in Figure 4 are produced by fitting the model to progressively larger samples. The first estimate is based on a sample ending in 2003m12, the second on one ending in 2004m1, and so on. The bold lines in each figure connect these successive parameter estimates, and are shown along with error bars indicating the standard error associated with each estimate. The fact that the bold lines lie well inside the error bars indicates that the parameter estimates are not varying greatly, relative to their standard deviation.

4. That is, we work out what the proportional change in support for the Peace Process would be in the long run, *ceteris paribus*, given a permanent percentage change in one of our explanatory variables. (Such permanent changes are hypothetical, since our variables were stationary between 2000 and 2004.) The steady-state coefficients are reported in Table 6. The table reports results for both the restricted and unrestricted models. Steady-state coefficients do not vary greatly between the two models, but standard errors are much smaller in the restricted model. Then we use the Table 4 coefficients to explore the short-run dynamics of the model, tracing out predicted levels of support for the Peace Process month by month after a temporary change in each of the explanatory variables. These results are illustrated in Figures 5-7.

Table 6 shows that both Israeli civilian fatalities outside WBG (*I*) and IDF casualties (*S*) are associated with weakened support for the Peace Process. The effect of IDF casualties appears to be the larger of the two. A permanent 1% increase in IDF casualties is predicted to reduce support for the peace process by around 0.12%; a similar increase in civilian casualties is predicted to reduce support for the peace process by around 0.03%. The explanation for these effects is likely to lie partly in their impact on perceived Israeli insecurity, and partly on the sense of grievance that they create. The fact that the IDF casualty effect is so much larger suggests that insecurity effects are more important than grievance effects here. It is difficult to see how military casualties could create more of a sense of grievance than civilian ones.

All of the other conflict intensity series appear with a positive coefficient. That is, Palestinian casualties of all kinds, and Israeli civilian casualties in WBG, are associated with greater support for the Peace Process. The three Palestinian casualty series (*PA*, *PM*, *INJ*) have roughly equal steady-state coefficients. A permanent 1% increase in any one of them is predicted to increase support for the Peace Process by around 0.06-0.08%. This effect might be explained partly in terms of increased sympathy for Palestinians, but the lack of a difference between the impact of adult fatalities and the impact of child fatalities might lead some to doubt whether sympathy is really an important factor. The alternative explanation is that a higher level of Palestinian casualties draws attention to the unrest in WBG, and the costs associated with the continuing absence of a peaceful settlement. This might also explain the positive effect on the Peace Index of higher Israeli civilian casualties in WBG (*IT*), although this effect is much smaller than that of Palestinian casualties and only marginally statistically significant. A permanent 1% increase in Israeli civilian casualties in WBG is predicted to increase support for the Peace Process by around 0.03%. It is likely that the

positive effect of these casualties in the peace Index is offset by a sense of grievance at Jewish deaths.

A higher inflation rate is associated with lower support for the peace process. A permanent increase in the inflation rate by one percentage point is predicted to reduce support for the Peace Process by around 0.07-0.10%. The most plausible explanation for this effect is that worsening economic conditions reduce support for the government generally, and this is manifested partly in greater ambivalence about the government's negotiations with the Palestinians. We obtain a similar result if inflation is replaced by unemployment growth as an indicator of economic misery. Higher unemployment growth leads to lower support for the Peace Process. However, inclusion of both economic variables in the model together generates statistically insignificant coefficients on unemployment growth.

Finally, there are three significant event dummies. The first of these (M0) indicates an atypical level of support for the Peace Process in the month of the 17 suicide bomb attacks (2002m3). In the absence of the M0 effect, our model predicts that 66 civilian fatalities would eventually reduce support for the Peace Process by around 12%: $0.03 \times \ln(66) \approx 0.12$. But the coefficient on M0 is about 0.25, so support for the Peace Process in 2002m3 was actually *higher* than we might otherwise expect: $0.25 - 0.12 = 0.13$. One explanation for this is that at extremely high civilian casualty levels the normal negative impact on the Peace index is reversed. However, we should be cautious when constructing a behavioral interpretation of a coefficient on a dummy variable, which might be capturing some other random variation in the value of the index for that month. The negative coefficients on M1 and M2 indicate that support for the Peace Process was particularly low during April-May 2004, the period of the Rafah vote and the Gaza demolitions.

Table 6 does not provide any information on the dynamics of the fitted model. Figures 5-7 fill this gap by illustrating hypothetical responses of the Peace Index to temporary changes in each of the explanatory variables. In constructing these figures, we have assumed in each case that all other variables are held constant,[13] and that there is a unit increase in our variable of interest for single period, after which it returns to its initial level. The lines plot the response of the log of the Peace Index over the next 12 months.[14] As we might expect from Table 6, the largest effect is for a change in the number of IDF fatalities. However, all of the

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[13] The figures summarize the dynamics of the model; they are not designed to illustrate the impact of "typical" shocks to the explanatory variables, which are not quite orthogonal.

[14] It can be seen from the figures that there is some oscillation in the response of the Peace Index in each case. This is a consequence of the negative coefficient on lagged $\ln(J)$ in Table 4, which is marginally significant in the unrestricted version of the model. There is no obvious explanation for this effect. Suppressing the lagged $\ln(J)$ coefficient removes the oscillation without changing the overall response patterns.

response profiles share a common feature: the bulk of the effect of a temporary change in a fatality variable, or in the rate of inflation, is dissipated within the next four months. Deviations of the Peace Index from its mean are short-lived, and a temporary change in any one dimension of the conflict is soon forgotten. Events of three or four months ago will have virtually no impact at all on the Peace Index today.

These results beg a final question: how much support would there be for the Peace Process in the absence of violent conflict? We can answer this question by using the fitted model in Table 4 to simulate a hypothetical Peace Index for 2000-2004 with one or all of the conflict variables set to zero over this period. Figures 8-9 depict such simulations, and Table 7 reports some of the corresponding descriptive statistics. Figure 8 illustrates some hypothetical Peace Index values when one or more of the factors reducing support for the peace process are set to zero. With no civilian casualties outside WBG ($I = 0$ and, with one interpretation of the dummy variable, $M0 = 0$) the index is a little higher on average, but only by about one percentage point. If in addition we remove the IDF fatalities ($S = 0$) there is a more substantial increase in the index, with an average that is nearly nine percentage points higher. This takes recent values of the index from the mid-30s to the mid-40s. Even in the absence of all civilian and military fatalities ($I = M0 = S = 0$) there is still not quite a majority of Jews in favour of the Peace Process. However, if we add in Arab Israeli support – which we have not modelled – then the Peace Index rises by about another three or four percentage points, bringing it very close to the 50% mark. This suggests that while a referendum on the Oslo principles today would most likely lead to a rejection, a referendum in the absence of IDF deaths and civilian deaths outside WBG would stand a good chance of being accepted. It is also consistent with the higher level of support for the Peace Process immediately before the onset of the second *Intifada*, when there were virtually no Israeli casualties but some Palestinian ones.

By way of contrast, Figure 9 illustrates a hypothetical Peace Index in the absence of all kinds of violence. Here, we have also set to zero the WBG casualty series (*IT, PA, PM, INJ*). Now the hypothetical index takes values very much lower than those actually realised, well below the 20% mark on average. The positive impact of the WBG casualty series on the Peace Index outweighs the negative impact of IDF deaths and civilian deaths outside WBG. These numbers should be treated with a certain amount of caution. A complete cessation of violence has never actually been realised for any length of time, and our model assumes that the different factors influencing opinion are additively separable.[15] Nevertheless, our results

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[15] Table 5 shows that the model passes a standard RESET test: the null of additive separability cannot be rejected at conventional significance levels. However, we are working with quite a small sample.

strongly indicate that in the complete absence of any sign of unrest in WBG, the vast majority of Israelis would be uninterested in the idea of peaceful negotiations with the Palestinians.

5. Summary and Conclusion

The existence of a monthly index of Israeli support for the Oslo Peace Accords permits a quantitative analysis of the factors driving changes in the level of support for a negotiated settlement with the Palestinians. We find that short-run variations in the intensity of the Israeli-Palestinian conflict, and also in Israeli economic conditions, translate into significant movements in the index. However, there is some complexity in the way in which the changing political and economic environment impacts on the Peace Index.

Different dimensions of the conflict impact on aggregate support for the Oslo Accords in different ways. Israeli casualties – including security force personnel but excluding civilian casualties on the far side of the Green Line – weaken support for the Peace Process. This could be explained partly by a sense of grievance among Israelis, and partly by a heightened sense of insecurity. The effect of security force casualties is particularly large. By contrast, civilian casualties in the West Bank and Gaza – including Israeli casualties – strengthen support for the Peace Process. Conflict events on the far side of the Green Line appear to heighten Israelis' perceptions of the costs of the continuing absence of a negotiated settlement. Economic misery – as captured by the rate of inflation or the rate of unemployment growth – reduces support for the Peace Process. One explanation for this effect is that poor performance in one area of policy (the economy) weakens government support in others (negotiations with the Palestinians).

One striking result of the statistical analysis is the speed with which opinions respond to conflict events and economic conditions. The current level of the Peace Index depends largely on what has happened in the last three or four months. Conflict events and economic conditions more than four months old have little impact on the current value of the index. Significant events, such as a large suicide bomb attack, have a substantial immediate impact on opinion, but after a few months their impact on opinion appears to be largely dissipated.

With some caution, we can forecast the impact on support for the Peace Process of a cessation of violence. With an end to fatal attacks on Israeli security force personnel and on civilians west of the Green Line, support may just about rise to 50%. As long as the attacks continue, a majority of Israelis are likely to remain opposed to the Peace Process, at least in its Oslo incarnation. By contrast, lowering civilian casualties east of the Green Line is likely to reduce support for the Peace Process. In the absence of any trouble, the majority of Israelis

are likely to give low priority to negotiations with the Palestinians. Successful international intervention in the Israeli-Palestinian conflict is likely to require an awareness of the incentives that these effects create for Israeli and Palestinian leaders.

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Table 1: List of Variables in the Model

Variable	Acronym	Source
The Oslo Peace Index (Jewish respondents)	J	Yaar and Hermann
Violent Israeli civilian deaths outside the West Bank / Gaza	I	B'Tselem
Violent Israeli civilian deaths inside the West Bank / Gaza	IT	B'Tselem
Violent Palestinian adult deaths	PA	B'Tselem
Violent Palestinian child deaths	PM	B'Tselem
Violent Israeli Defence Force Deaths	S	B'Tselem
Violence-related Palestinian injuries	INJ	PCRC
Monthly Israeli inflation rate (%)	INF	Israeli CBS
Monthly Israeli unemployment (millions)	U	Israeli CBS
Dummy variable for March 2002 (17 suicide attacks)	M0	
Dummy variable for April 2004 (Gaza vote)	M1	
Dummy variable for May 2004 (Rafah demolitions)	M2	

Table 2: Descriptive Statistics

	mean	s.d.	ADF t ratio	ADF test lag[§]
$\ln(J)$	3.4460	0.1125	-2.81	1
$\ln(1+I)$	1.6646	1.1652	-3.59	1
$\ln(1+IT)$	1.3564	0.7995	-6.07	0
$\ln(1+PA)$	3.6698	0.6838	-5.15	0
$\ln(1+PM)$	2.3761	0.6539	-4.84	0
$\ln(1+S)$	1.5517	0.8838	-5.98	0
$\ln(INJ)$	5.9001	0.8004	-5.39	0
INF	0.1486	0.5249	-4.59	0
$\Delta\ln(U)$	-0.0064	0.0614	-8.66	0

[§] Lag lengths minimize the Schwartz Criterion for the ADF regression, subject to the absence of residual autocorrelation. All regressions include an intercept but no deterministic trend.

Table 3: Unconditional Correlations

	$\ln(J)$	$\ln(1+I)$	$\ln(1+IT)$	$\ln(1+PA)$	$\ln(1+PM)$	$\ln(1+S)$	$\ln(INJ)$	INF
$\ln(1+I)$	-0.3891							
$\ln(1+IT)$	-0.1001	0.2772						
$\ln(1+PA)$	-0.1460	0.0922	0.1531					
$\ln(1+PM)$	-0.1136	-0.0636	0.1286	0.7178				
$\ln(1+S)$	-0.2925	0.1999	0.3257	0.4994	0.3837			
$\ln(INJ)$	0.1732	0.0330	0.3545	0.4449	0.2380	0.2853		
INF	-0.3778	0.1643	0.2189	0.2698	0.1710	0.3612	0.3654	
$\Delta\ln(U)$	0.1216	0.2419	0.2057	0.0261	-0.0421	-0.1190	0.0263	-0.2672

Table 4: The Fitted Model

	Unrestricted Model				Restricted Model			
	coeff.	*s.e.*	*t ratio*	*prob.*	*coeff.*	*s.e.*	*t ratio*	*prob.*
$\ln(J)_{-1}$	-0.1794	0.1194	-1.5025	0.1479	-0.1949	0.0824	-2.3653	0.0242
$\ln(J)_{-2}$	0.2389	0.0991	2.4107	0.0252	0.2619	0.0682	3.8402	0.0005
$\ln(1+I)$	-0.0193	0.0092	-2.0978	0.0471	-0.0144	0.0055	-2.6182	0.0140
$\ln(1+I)_{-1}$	-0.0117	0.0084	-1.3929	0.1765	-0.0122	0.0054	-2.2593	0.0310
$\ln(1+I)_{-2}$	0.0046	0.0081	0.5679	0.5705				
$\ln(1+IT)$	0.0129	0.0125	1.0320	0.3120				
$\ln(1+IT)_{-1}$	-0.0049	0.0179	-0.2737	0.7864				
$\ln(1+IT)_{-2}$	0.0208	0.0151	1.3775	0.1825	0.0218	0.0097	2.2474	0.0313
$\ln(1+PA)$	-0.0188	0.0211	-0.8910	0.3827				
$\ln(1+PA)_{-1}$	-0.0010	0.0239	-0.0418	0.9684				
$\ln(1+PA)_{-2}$	0.0779	0.0232	3.3578	0.0030	0.0556	0.0124	4.4839	0.0001
$\ln(1+PM)$	-0.0048	0.0206	-0.2330	0.8195				
$\ln(1+PM)_{-1}$	0.0688	0.0188	3.6596	0.0014	0.0590	0.0131	4.5038	0.0001
$\ln(1+PM)_{-2}$	-0.0090	0.0234	-0.3846	0.7041				
$\ln(1+S)$	0.0016	0.0111	0.1441	0.8877				
$\ln(1+S)_{-1}$	-0.0671	0.0118	-5.6864	0.0000	-0.0667	0.0093	-7.1720	0.0000
$\ln(1+S)_{-2}$	-0.0512	0.0116	-4.4138	0.0003	-0.0535	0.0089	-6.0112	0.0000
$\ln(INJ)$	0.0254	0.0315	0.8063	0.4292				
$\ln(INJ)_{-1}$	0.0914	0.0242	3.7769	0.0011	0.0805	0.0131	6.1450	0.0000
$\ln(INJ)_{-2}$	-0.0237	0.0239	-0.9916	0.3314				
INF	-0.0403	0.0207	-1.9469	0.0644	-0.0346	0.0123	-2.8130	0.0084
INF_{-1}	-0.0528	0.0210	-2.5143	0.0204	-0.0349	0.0147	-2.3741	0.0234
INF_{-2}	0.0016	0.0238	0.0672	0.9462				
M1	-0.1490	0.0762	-1.9554	0.0640	-0.1226	0.0475	-2.5811	0.0146
M2	-0.1728	0.0598	-2.8896	0.0088	-0.1710	0.0455	-3.7582	0.0007
M0	0.2495	0.0579	4.3092	0.0003	0.2356	0.0416	5.6635	0.0000
Intercept	2.5508	0.4457	5.7231	0.0000	2.6064	0.2534	10.2857	0.0000
σ	0.0393				0.0345			
R^2	0.9355				0.9244			
Akaike Criterion	-6.1755				-6.4745			
Schwartz Criterion	-5.1229				-5.8507			

Table 5: Test Statistics for the Restricted Model

test	*distribution*	*statistic*	*prob.*
Error Autocorrelation	$F_{(1,30)}$	1.2283	0.2766
ARCH	$F_{(1,29)}$	0.9467	0.3386
Normality	$\chi^2(2)$	2.3486	0.3090
Heteroskedasticity	$F_{(27,3)}$	0.1512	0.9983
RESET	$F_{(1,30)}$	0.3068	0.5837

Table 6: Steady-State Coefficients

	Unrestricted Model				Restricted Model			
	coeff.	*s.e.*	*t ratio*	*prob.*	*coeff.*	*s.e.*	*t ratio*	*prob.*
ln(1+*I*)	-0.0281	0.0157	-1.7912	0.081	-0.0285	0.0084	-3.3792	0.002
ln(1+*IT*)	0.0306	0.0179	1.7069	0.096	0.0234	0.0106	2.2104	0.033
ln(1+*PA*)	0.0617	0.0326	1.8953	0.066	0.0596	0.0117	5.0794	0.000
ln(1+*PM*)	0.0586	0.0384	1.5248	0.136	0.0633	0.0164	3.8658	0.000
ln(1+*S*)	-0.1240	0.0246	-5.0487	0.000	-0.1288	0.0161	-8.0025	0.000
ln(*INJ*)	0.0990	0.0231	4.2932	0.000	0.0863	0.0110	7.8383	0.000
INF	-0.0973	0.0269	-3.6221	0.001	-0.0745	0.0161	-4.6367	0.000
M1	-0.1584	0.0799	-1.9825	0.055	-0.1314	0.0487	-2.7005	0.010
M2	-0.1837	0.0624	-2.9460	0.006	-0.1833	0.0494	-3.7144	0.001
M0	0.2653	0.0719	3.6914	0.001	0.2525	0.0499	5.0594	0.000
intercept	2.7122	0.1628	16.6595	0.000	2.7935	0.0758	36.8682	0.000
σ		0.0418				0.0369		

Table 7: Hypothetical Moments of the Oslo Index under Alternative Dynamic Simulations

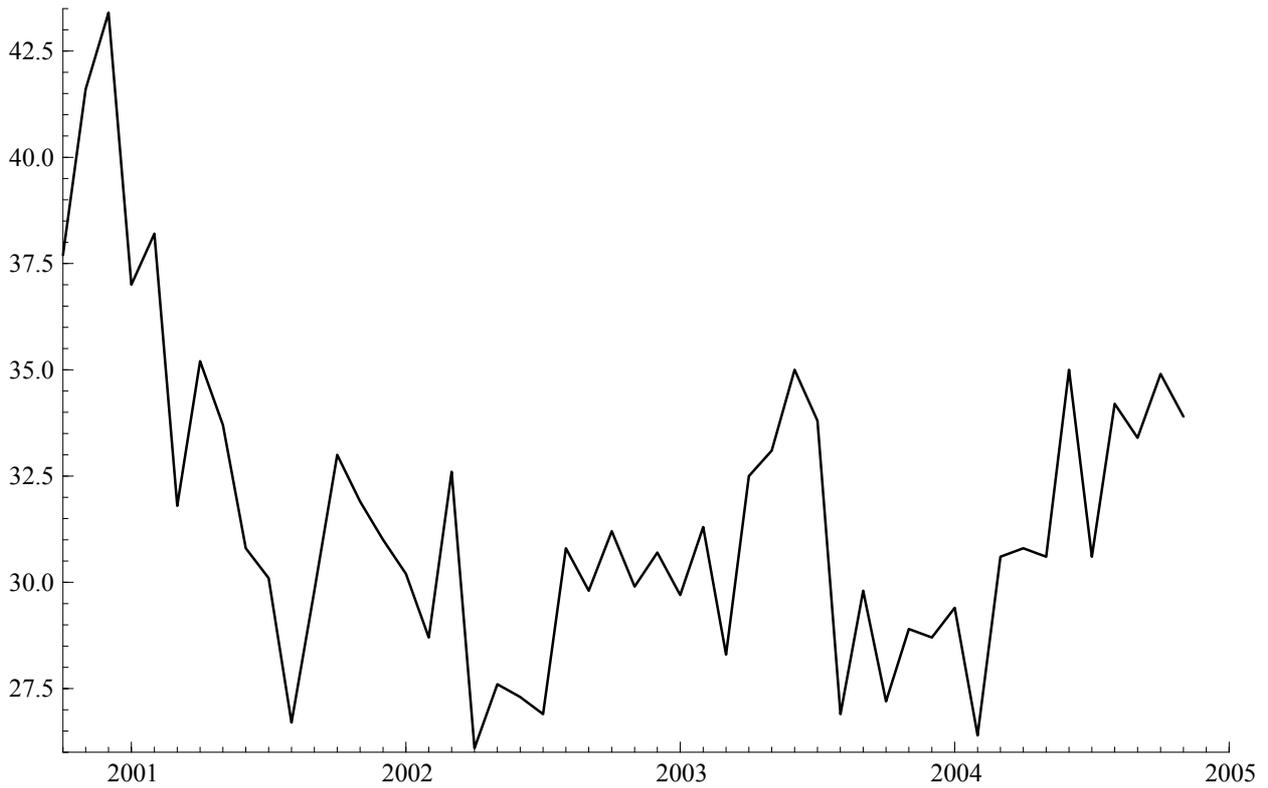|	*mean*	*s.d.*
actual index	31.2380	3.3557
index with *I* = *M*0 = 0	32.5880	3.2217
index with *I* = *M*0 = *S* = 0	39.9250	4.0103
index with *I* = *M*0 = *S* = *M*1 = *M*2 = 0	40.1680	3.8146
index with no violence	16.2990	1.0060

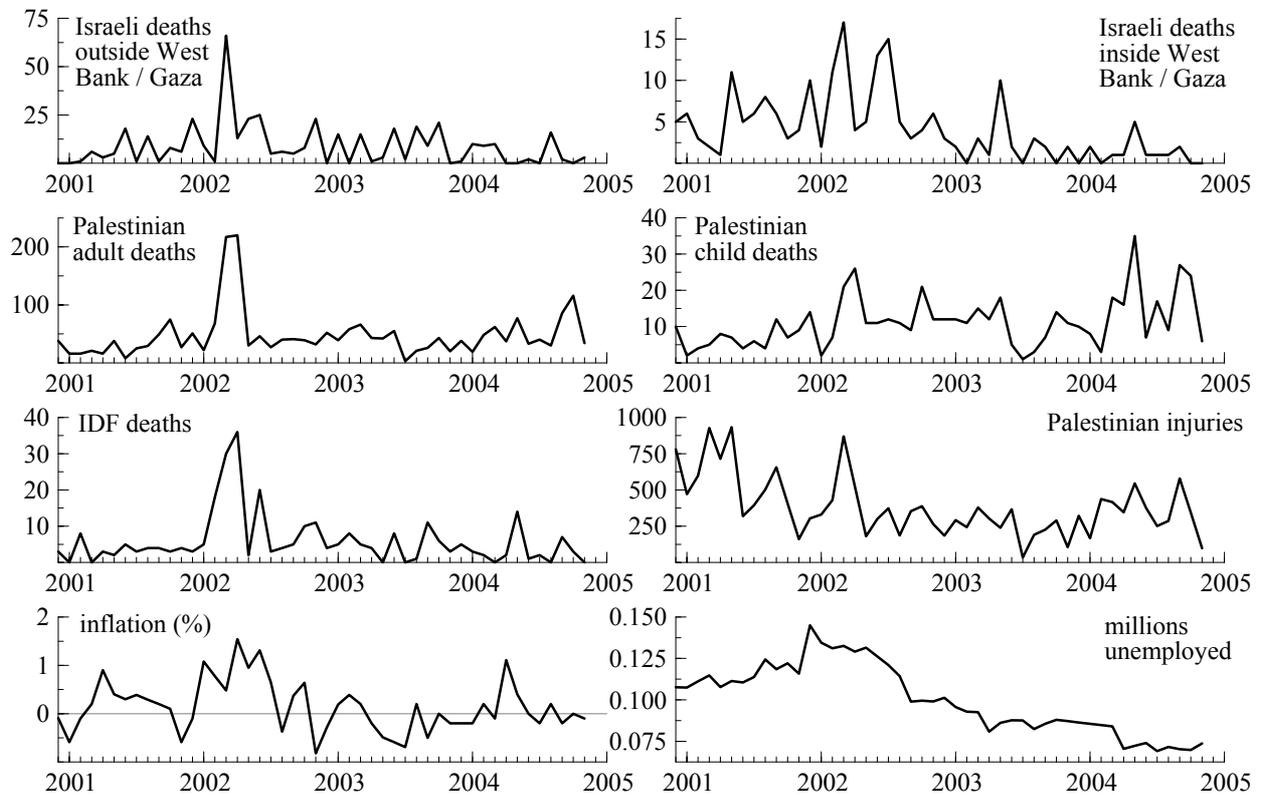**Figure 1: The Oslo Peace Index (Jewish Respondents)**

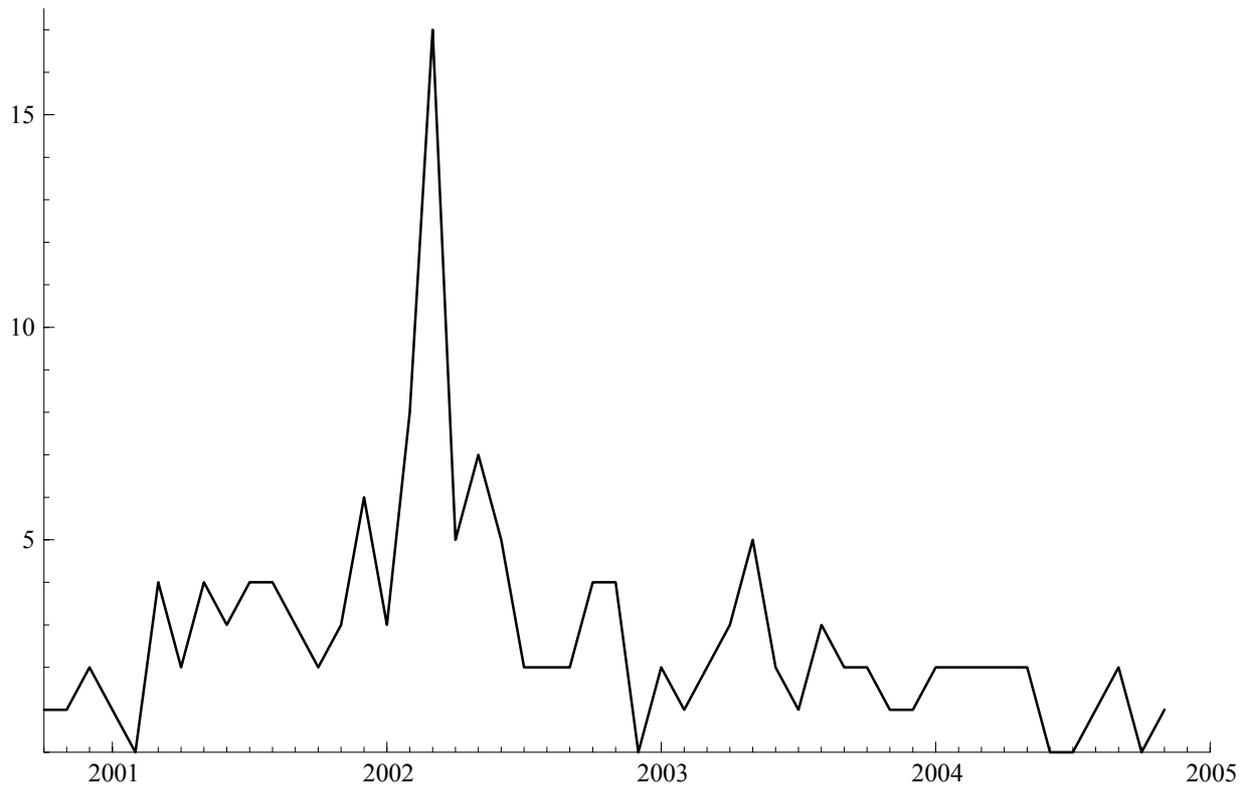**Figure 2: Correlates of the Oslo Peace Index**
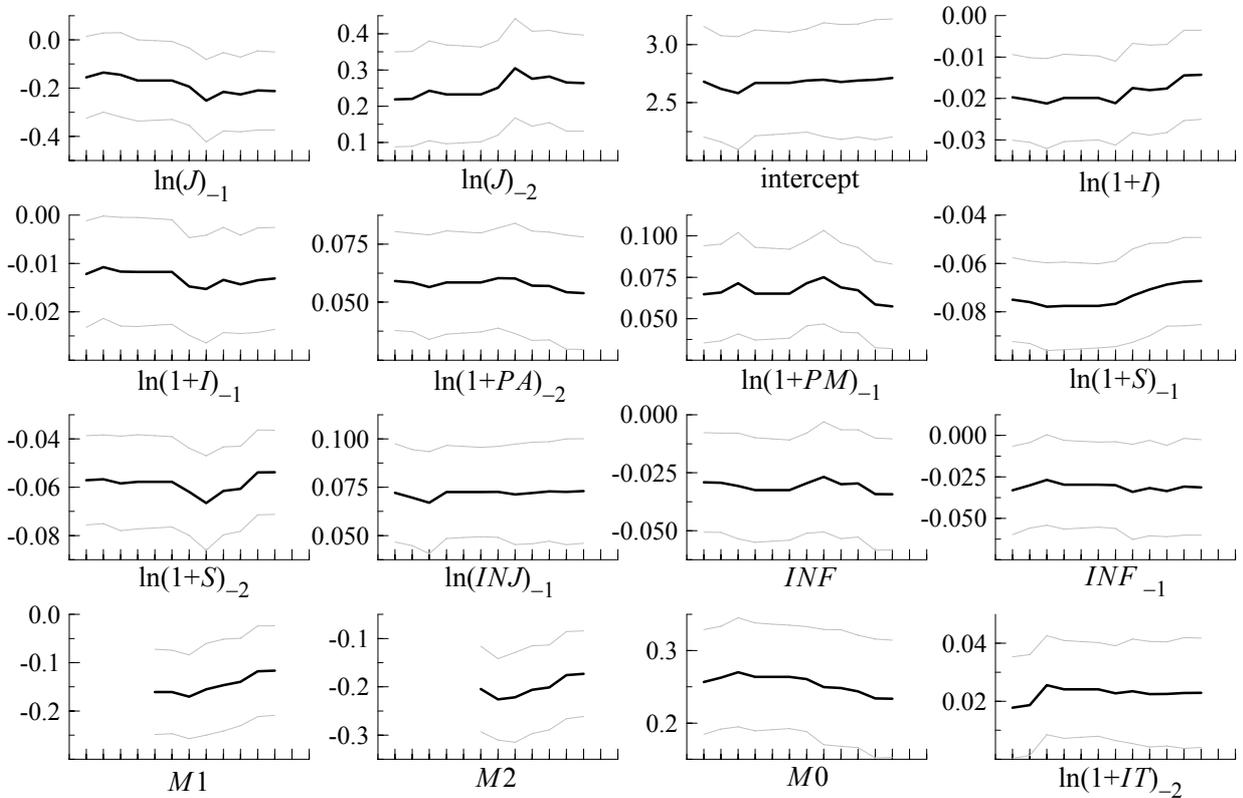
Figure 3: Number of Suicide Attacks

Figure 4: Recursive Parameter Estimates over the Last Twelve Months of the Sample with Two-Standard-Error Bars
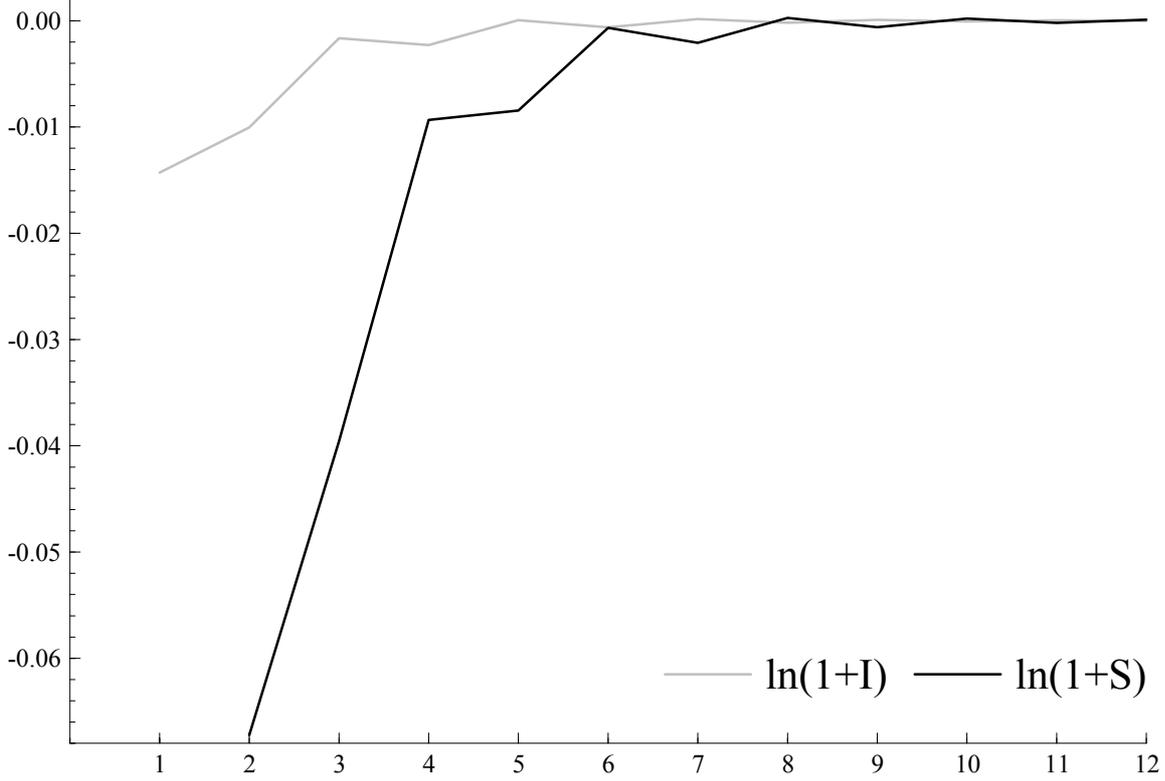
24

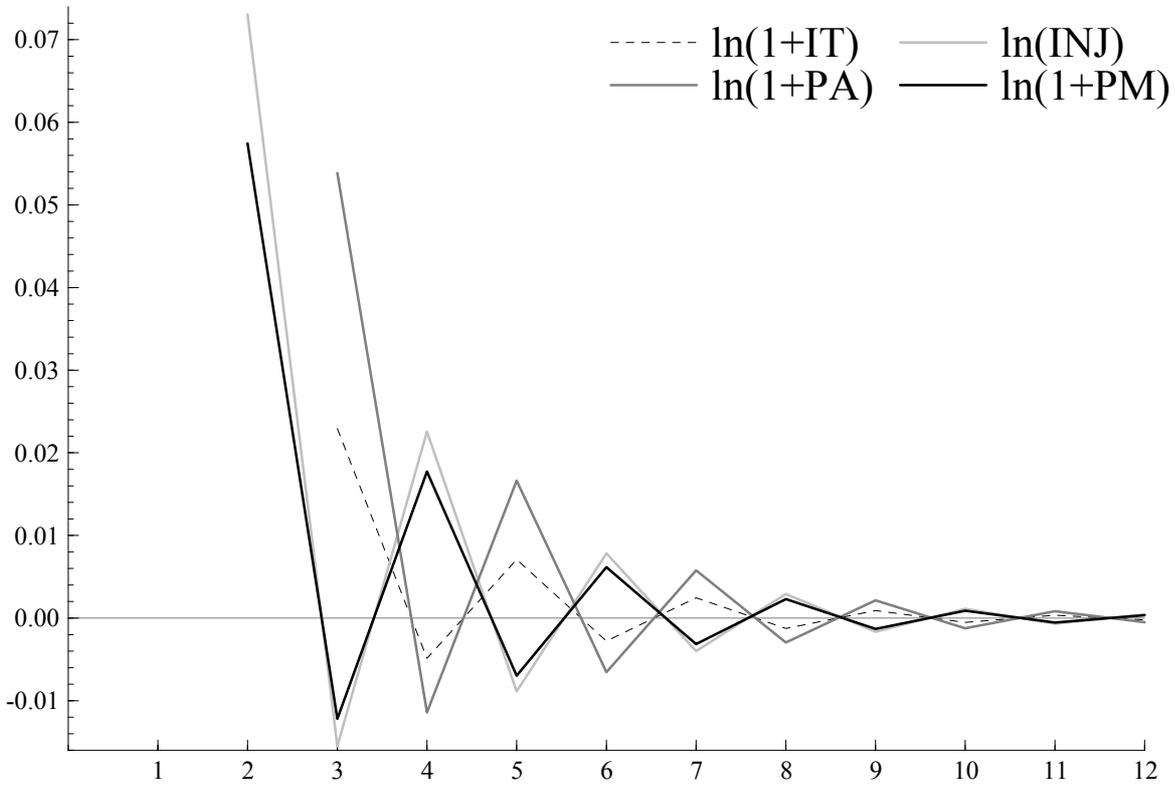**Figure 5: Response of ln(*J*) to a Unit Impulse in ln(1+*I*) or ln(1+*S*)**

Figure 6: Response of ln(*J*) to a Unit Impulse in Other Violence Indicators
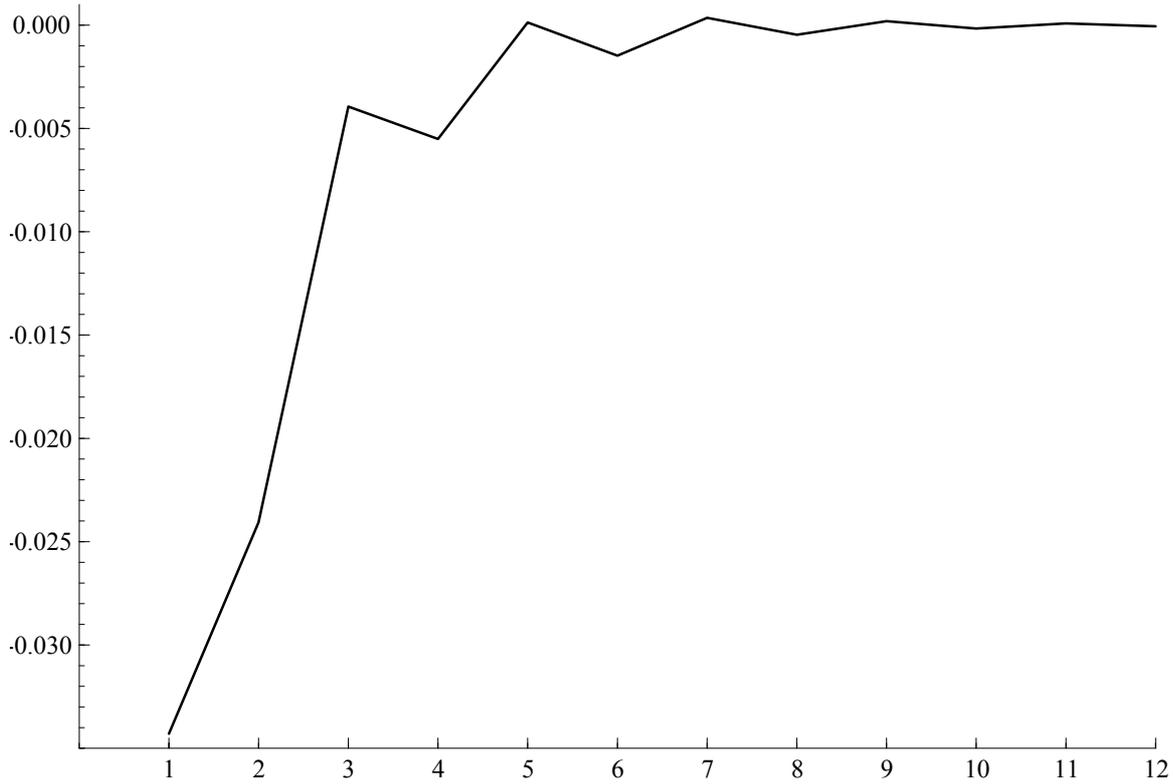
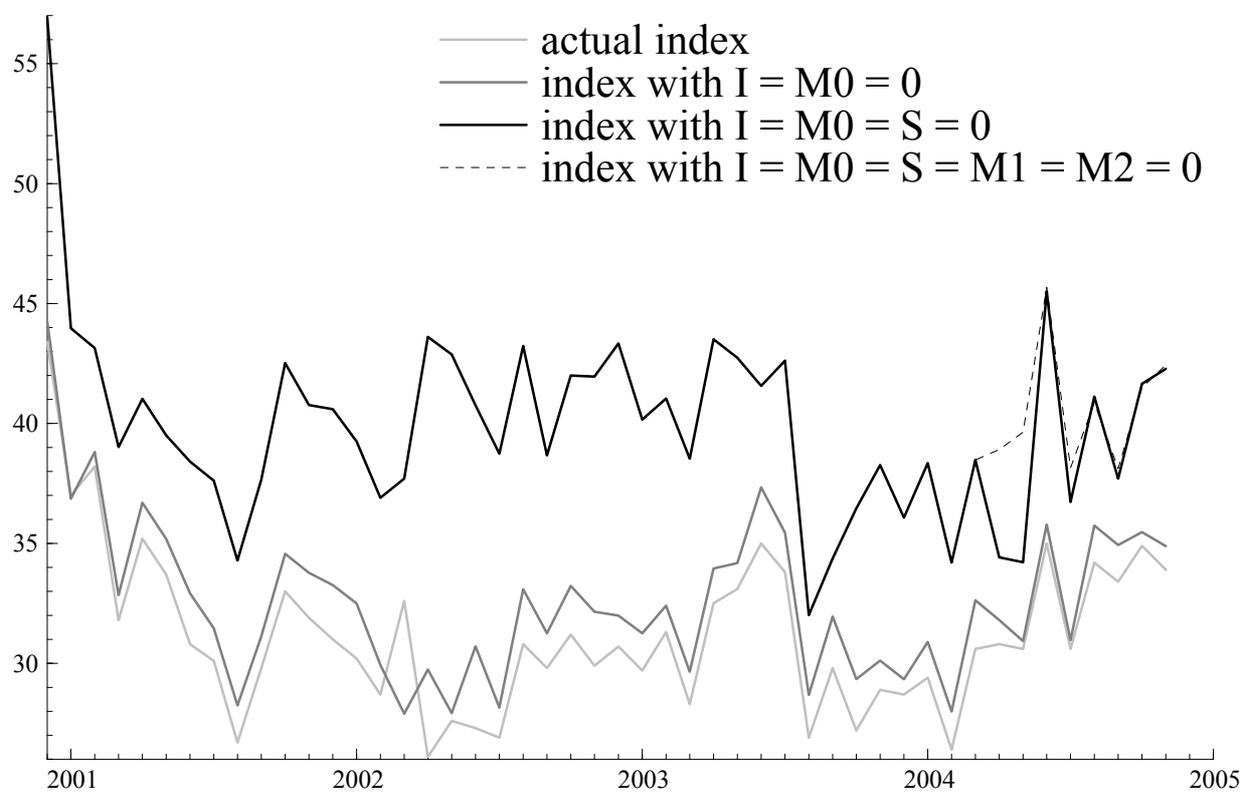**Figure 7: Response of ln(*J*) to a Unit Impulse to *INF***

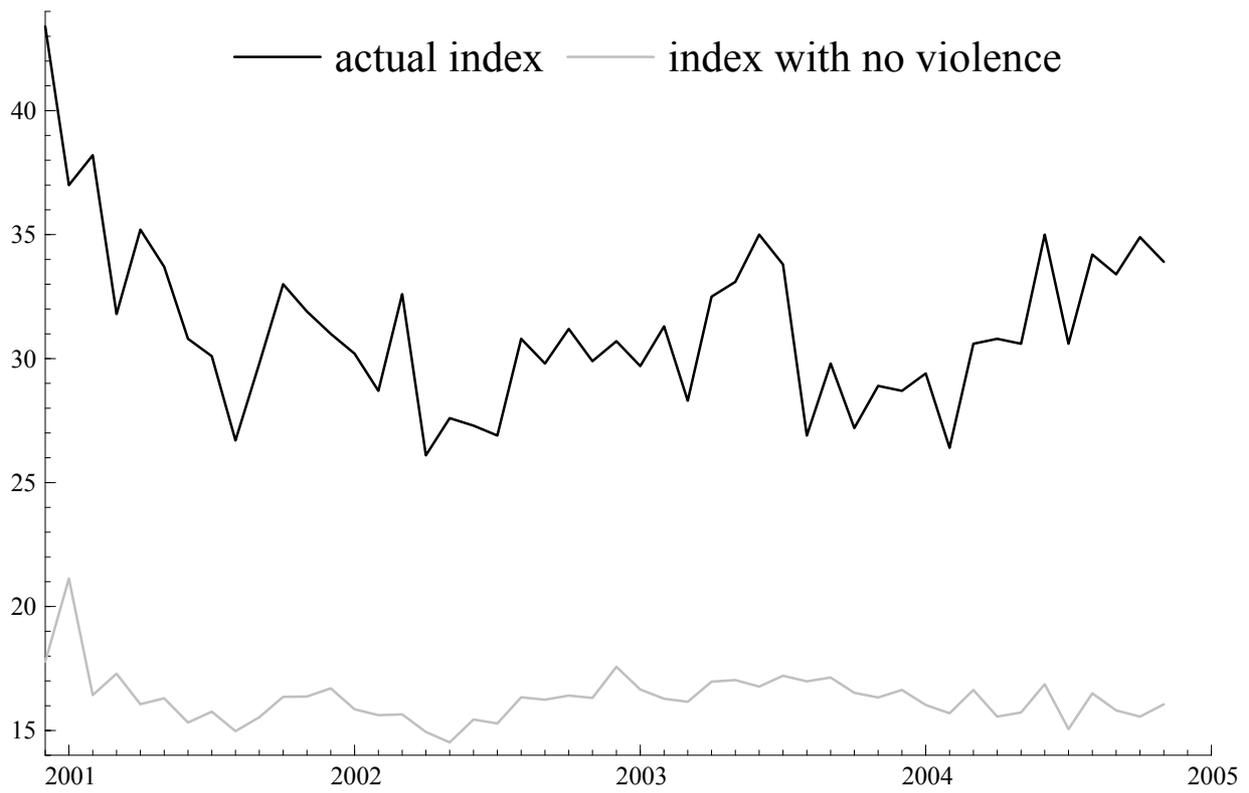**Figure 8: Dynamic Simulation of Counterfactual Oslo Index Values**

Figure 9: Dynamic Simulation of Counterfactual Oslo Index Values