The consequences of Not Loving thy neigbor as Thyself: Trade, democracy and military explainations behind India Pakistan rivalry

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THE CONSEQUENCES OF NOT LOVING THY NEIGHBOUR AS THYSELF: TRADE, DEMOCRACY AND MILITARY EXPENDITURE EXPLANATIONS UNDERLYING INDIA-PAKISTAN RIVALRY

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ABSTRACT

We examine whether greater international trade, democracy and reduced military spending lower belligerence between India and Pakistan. Conflict between the two nations can be best understood in a multivariate framework where variables such as economic performance, multilateral trade with the rest of the world, bilateral trade, military expenditure, democracy scores and population are simultaneously taken into account. Our empirical investigation based on time series econometrics from 1950-2005, allowing us to truly address causality, suggests that reduced bilateral trade, greater military expenditure, less development expenditure, lower levels of democracy, lower growth rates and less general trade openness are all conflict enhancing, albeit with lags in some cases. Moreover, there is reverse causality between bilateral trade, militarization and conflict; low levels of bilateral trade and high militarization are conflict enhancing, equally conflict also reduces bilateral trade and raises militarization. Economic growth is conflict mitigating, but the reverse is not true. *Globalization*, or a greater openness to trade with the rest of the world, is the most significant driver of a liberal peace, corroborating a modified form of the capitalist peace, rather than a common democratic political orientation suggested by the pure form of the Kantian liberal peace.

Word Count: 10, 117

INTRODUCTION

This article examines inter-state hostility between India and Pakistan, which is arguably one of the most prominent inter-state conflicts still extant, whose saliency is highlighted by the presence of nuclear weapons on both sides. Conflict reduction is also necessary if the region is to release resources from military expenditure for poverty reduction. We analyse some of the factors that might lead to conflict abatement between these long standing rivals, including the role of trade and a mutually democratic orientation. In doing so, we hope to utilise this important case of bilateral inter-state conflict to shed some light on the voluminous liberal peace literature.

India and Pakistan emerged as separate nation states in August 1947, when British India was partitioned following independence from colonial rule. Latterly, in 1971, the Eastern wing of Pakistan separated to become Bangladesh. In many ways, India and Pakistan share a common heritage, including overlapping languages and ethnicities, as two major provinces of British India were split up in the partition process (Punjab and Bengal). The ostensibly differentiating factor is religion; although Pakistan is predominantly Muslim, up to 10% of India's population continues to be Muslim, and as much as 15% of Bangladesh's population is non-Muslim.

The hostility between India and Pakistan dates back to the very inception of these countries as independent states. They have had six wars or fatal conflicts; three over the disputed territory of Kashmir in 1947-48, 1965 and 1999, the Rann of Kutch in 1965, one in connection with the secession of Bangladesh in 1971, and sporadic fighting over the uncharted Siachen Glaciers in the 1980s. The territorial dispute over Kashmir remains unresolved. Even when they are not engaged in outright war, Indian and Pakistani troops confront each other every day, with fingers literally on the trigger, along the ceasefire line or line of control established on 1st January 1949 in Kashmir. India also unilaterally amassed troops more generally along the Pakistan border in 1951 and 2002. India has, with considerable justification, accused Pakistan of fomenting, aiding and abetting the insurgency in Indian Kashmir since 1989, and wider acts of terrorism inside India (with less justification). India is not a signatory to the nuclear non-proliferation treaty, and Pakistan refuses to become party to this agreement unless India does. Both nations have a long history of accusing each other of espionage and sabotage. Despite these hostilities there are a few hopeful signs. India and Pakistan successfully resolved any potential riparian disputes over the Indus in 1960. They do engage in talks, make occasional goodwill gestures involving travel links, and regularly engage in sporting exchanges, especially cricket tours.

Any search for the seeds of conflict between these two countries will stress the saliency of the Kashmir territorial dispute.[1] Kashmir was not directly ruled by the British, but was a quasi-autonomous princely state with a Hindu

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[1] The first Indian Prime Minister, Jawaharlal Nehru's ancestry is from Kashmir, and in the acronymic version of the name Pakistan the letter K denotes Kashmir, originally conceived by a Cambridge undergraduate Choudhary Rahmat Ali in 1933.

prince ruling over a predominantly Muslim population. The partition plan allowed princely states to opt for either India or Pakistan. While not a single princely state with a Hindu population was permitted to join Pakistan, the Hindu ruler of Kashmir was persuaded to accede to India; see Korbel (1954). This angered many, including tribesmen in Pakistan's North-West Frontier Province alongside Afghanistan. The tribal incursion into Kashmir led to a response by the regular Indian army, and later irregular and regular Pakistani forces were drawn into the fray. The rest is history, but the majority of Kashmir is in India (including the Kashmir valley) and Pakistan controls the smaller and more rugged mountainous chunk of Kashmir. The UN brokered ceasefire of 1949, which is still the *de facto* frontier at present, envisaged a plebiscite to determine the fate of Kashmir, but it has never been implemented due to Indian reservations.

But besides this seemingly irresolvable territorial dispute, there are other historical and cultural factors that have made the people of these two countries grow apart. These processes are embedded in the undivided Indian nationalist struggle for self-government. Following the formation of the Indian National Congress in 1885, another organisation, the Muslim League appeared in 1906, dividing the nationalist movement along sectarian lines (Wolpert, 2002). While many Muslims continued, and still continue, to be members of the Congress the real dispute between the two communities (the Hindu majority and the sizeable Muslim minority) was over the federal or con-federal nature of a self-governing India. As is well known, a Westminster style unitary or majoritarian electoral system, can under-represent a sizeable minority (as in the case of Catholics in Northern Ireland from 1922 down to the dissolution of the Stormont Parliament in 1972), as well as stifling regional autonomy. The Congress's obduracy over this issue caused Jinnah (the founder of Pakistan) to seek a different political path; see Wolpert (2002). Even as late as 1946, the Cabinet Mission plan for a future independent India conceived a federation of three largely autonomous states with only three common areas of federal competence: defence, currency and foreign affairs; see Wolpert (2002). This formulation was accepted by Jinnah and his Muslim League, but rejected by the Congress led by Nehru who favoured a unitary majoritarian system. Secondly, we have the trauma of partition in 1947. Both the Indian and Pakistani Punjab were ethnically cleansed; some 6 million refugees were forced to flee the Indian Punjab to Pakistan and similarly 4 million people from the other side (Moon, 1962). At least half a million (but more likely a million) died in the violence associated with the partition of the Punjab province alone, something that has prompted many writers, including Wolpert (2006) to describe it as an act of stupendous mismanagement by the colonial administration. Thirdly, the language that was common to all communities in Northern India, has grown, and is still growing, apart since the late 19th century. What used to be Hindustani has gradually metamorphosised into Urdu for Muslims and Hindi for non-Muslims. Finally, the draconian consular practices of the two countries inhibit travel and cultural exchange, despite the much vaunted cricket tours. Initially, the two countries shared a common currency and no visas were required for travel. Prior to the advent of satellite television films or music in common or commonly understood languages could not be viewed in the

other country except through clandestine means. There is little in terms of rail and air links between the two nations that promote peaceful networks (Gleditsch, 1967).

Figure 1: Patterns in India-Pakistan Trade
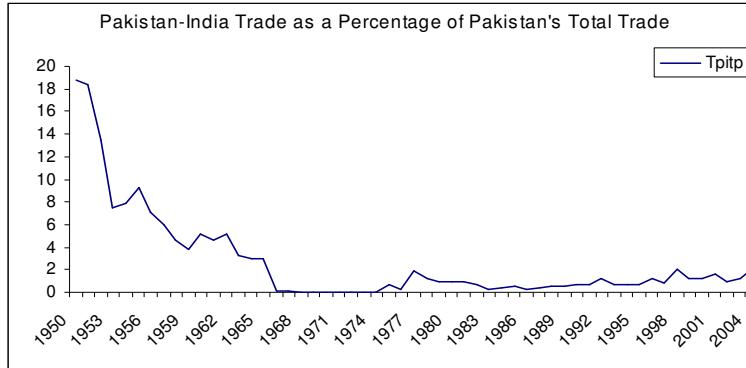
Can trade mitigate the conflict between these two populous South Asian nations? Polachek (1997) and Polachek & Seiglie (2006) argue that wars and disputes between geographically contiguous states involve substantial losses, as more efficient geographically proximate trade is displaced.[2] Similarly, the absence of trade is also conflict enhancing for neighbours. Robst, Polachek & Chang (2007) demonstrate that geographical proximity has a greater conflict enhancing effect when two nations do not trade much, as is the case with India and Pakistan. Figure 1 shows that India-Pakistan official trade (as a proportion of Pakistan's total international trade) steadily declined from nearly 20% in the early 1950s, plummeting to almost zero after their war in 1965, and has shown some signs of recovery in the 1990s. But it is still below the levels of the 1950s, which was shortly after the two nations were separated politically. This is despite the fact that both India and Pakistan are increasingly more open economies (figure 2), with Pakistan being historically the more trade dependent economy.

Figure 2: Openness for Pakistan and India

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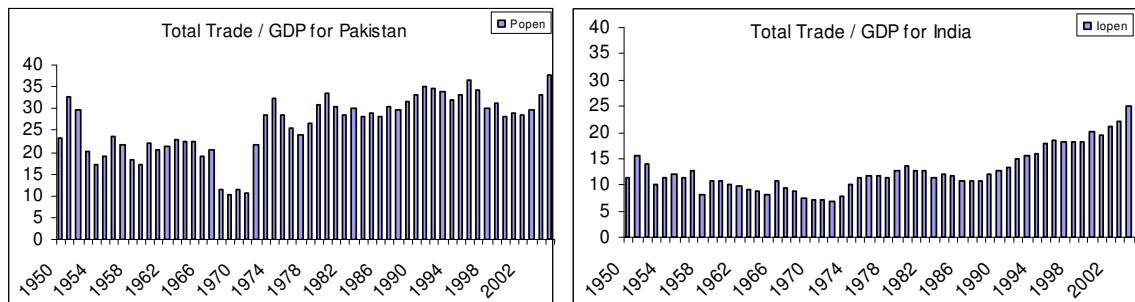
[2] When we come to comparing trade and conflict with many nations, not just dyadic (pairwise) interactions, Dorussen and Hegre (2003) argue that although trade reduces conflict, in the presence of many countries, an increase in the number of countries or the world's endowment may induce more conflict, as there are more countries to grab from.

Secondly, can a more common polity based on democratic values mitigate conflict between these two countries? India has always had one of the highest democracy scores in the developing world (scoring 7-9 out of 10), whereas Pakistan's experience with democracy varies, because of military coups in 1958, 1969, 1977 and 1999. Figure 3 illustrates large military expenditures in the two countries, with an understandably greater military burden for the smaller country, Pakistan. These two countries have some of the highest military burdens in the world outside the Middle East (World Development Indicators, 2006).

The opportunity costs of conflict could rise when countries move to higher stages of economic development (Gartzke, 2007). The 1990s is considered to be a golden decade for India as on an average the Indian economy grew at 5-6% annually. Despite a relatively high democracy score in Pakistan up to 1999, conflict between the countries escalated in the 1990s. By contrast, the recent regime in Pakistan with a strong military orientation made major unilateral concessions to India vis-à-vis their long standing disputes over Kashmir. If anything, conflict between the two nations can be best understood in a multivariate framework where the relevant variables and processes (economic performance, integration with rest of the world, bilateral trade, military expenditure, democracy and population) are simultaneously taken into account. We also investigate the causal links between bilateral conflict and these variables in a time series framework.

Figure 3: Defence Spending as a Proportion of GDP in India and Pakistan
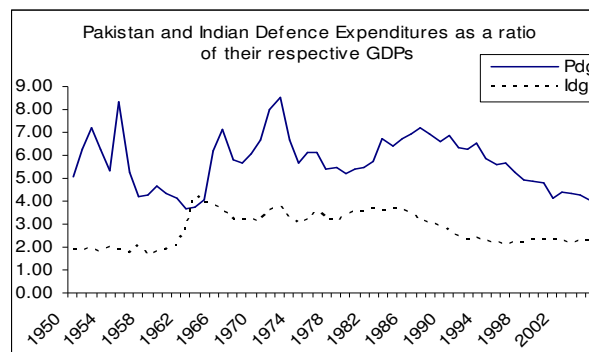
The rest of the article proceeds as follows: the next section contains a brief review of the liberal peace literature, followed by a theoretical model of strategic interaction preceding our empirical analysis and a brief conclusion.

THE LIBERAL PEACE

Nation states have long been regarded to exist in a state of non-contractual anarchy vis-à-vis each other, making the exercise of power or the gathering of power by war an opportunistic act. Yet there are beliefs that common values, and/or inter-state commerce will moderate or eradicate these war-

like tendencies; see Doyle (1986) and Oneal and Russet (1997), for example. These views of the liberal peace, in turn, may be sub-divided into two types of theories: one set emphasising common norms between nation states (with democracy at the kernel of these shared beliefs), and another highlighting that conflict or war seriously disrupts international trade, thereby reducing the gains from trade, and thus inducing a rational leadership to eschew war. The former notion is more idealistic, and the latter idea is predicated upon a rational calculus of the opportunity costs of lost trade.

The idealist version of the liberal peace can be traced back to Immanuel Kant, who in his essay on the Perpetual Peace (1795) argues that although war is the natural state of man, peace can be established through deliberate design. This requires the adoption of a republican constitution simultaneously by all nations, which *inter alia* would check the war-like tendencies of monarchs and the citizenry; the *cosmopolitanism* that would emerge among the comity of nations would preclude war. Additionally, commerce between nations would grease the machinery that keeps the peace.[3] We may refer to this strand of the liberal peace, where trade plays only an indirect role, as the 'Kantian' peace. So do democracies never fight each other? There are the assertions of some, for example Gartzke (2007) who argues that: "Democracy cohabitates with peace. It does not, by itself, lead nations to be less conflict prone, not even toward other democracies", (Gartzke, 2007: 170). Mansfield and Snyder (2005) have argued that the road to democracy for countries at an early stage in the democratisation process may contribute to the risk of conflict. This is because national sentiments may rise to the fore in the presence of weak institutions. This may apply to Pakistan, and even to India given its widespread poverty.

The second liberal view that trade between nations *directly* contributes to the peace can be related to the Baron de Montesquieu's, Spirit of the Laws (1748), where he states that commerce tends to promote peace between nations; mutual self-interest precludes war; trade also softens attitudes of peoples towards each other. The analogy of these views with contemporary neo-classical economic theory is that trade reproduces the integrated economy. Free trade in a Heckscher-Ohlin framework leads to product and factor price equalization, hence producing economic integration, even if nation states continue to be politically separated. Polachek (1980) found that nations with the greatest amount of trade were least hostile to each other, and a doubling of trade would lead to a 20% decline in hostility.

The trouble with the pacific interpretation of international trade is that during the two world wars of the 20th century, highly interdependent economies went to total war with each other. Consequently, the economic interdependence argument for peace needs nuancing. There is, indeed,

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[3] Interestingly, Kant (1795) argued that such arrangements between nations might exclude distant lands, and aggressive wars, such as those associated with colonialism, might be waged against peoples deemed to be outside the pale of civilization. A similar point has been recently made by Gartzke (2007) in a different context where development and common goals precludes wars between countries at a similar level of development, but makes wars with distant countries at a lower level of development more likely.

considerable debate on the empirical validity of the opportunity costs of lost gains from trade deterring inter-state conflict. As with Polachek (1980, 1997), Oneal and Russett (1999) show that trade and peace are highly correlated. While all analysts agree that war impedes trade, the realist view is that countries may choose to disrupt their potential enemy's gains from trade by ceasing trade with them, even if this means hostilities. There are also instances of nations trading even when there are at war. Barbieri & Levy (1999), using an interrupted time series framework found little impact of war on trading relationships for 7 dyads from 1870. They argue that any disruption to bilateral trade caused by war is, in many instances, remedied after peace emerges. Both trade and war produce winners and losers. Even if there are losses to the aggregate economy from war or diminished trade, some groups may gain, and these groups may be the more politically influential. These results were disputed by Anderton and Carter (2001). Kim & Rousseau (2005) emphasise the simultaneity problem or reverse causality running between economic interdependence and conflict; instrumenting for this difficulty on data for 1960-88 they find that conflict diminishes economic interdependence, but not the other way around, providing only partial support for the opportunity cost of trade liberal peace theory. Keshk, Pollins & Reuveny (2004) also come up with a similar finding. Other factors, besides trade, may be at work.

Hegre (2000) points out that economic interdependence reinforces peace, but between more developed economies. Russet and Oneal (2001) argue that it is the economic dependence on trade of the least dependent on the other member of a pair of nations that will determine the pacific effect of trade. In the same spirit, Martin, Mayer & Thoenig (2008) argue both theoretically and empirically that it is the potential disruption to a high degree of bilateral trade dependence, rather than their general exposure to multilateral trade that is conflict abating. Their theoretical model, however, emphasises the presence of asymmetric information in producing war.

Among the updates proposed to the liberal peace theory based on economic interdependence is the 'capitalist' peace notion of Gartzke (2007) where the notion of interdependence is nuanced and the saliency of international trade in goods and services minimised. He argues that the intensity of trade is the least important feature in the peace engendered by modern capitalism, although McDonald (2004) demonstrates that it is not just the trade intensity between nations, but a commitment to the policy of free trade, that may promote the liberal peace as it serves to dampen domestic protectionist and pro-war interests, as will be demonstrated by our analysis. The nature of advanced capitalism makes territorial disputes, which are mainly contests over resources, less likely as the market mechanism allows easier access to resources. The nature of production makes the output of more sophisticated goods and services increasingly reliant on 'ideas' that are research and development intensive, and skilled personnel can be acquired through more open global labour markets. Moreover, the disruption to integrated financial markets makes war less likely between countries caught up in that web of interdependence. We might also add the fragmented nature of production with components produced in different international locations. Much of world

trade is trade in components between the same multi-national firms across national borders. Gartzke (2007) argues that common foreign policy goals reflected in the membership of international treaty organisations also produce peace; a point also made by Dorussen & Ward (2008), except that they emphasise indirect network links. There is little in terms of financial and investment flows between India and Pakistan ruling out this aspect of the capitalist peace in their case. Moreover, the Kashmir territorial dispute is not about resources. There is, however, less foreign policy divergence now as compared to the past. India under Nehru (1947-64) veered towards the non-aligned movement, and was closer to the Soviet Union in the 1960s, 1970s and 1980s, from whom it obtained concessionary military assistance. Pakistan, by contrast, was a member of the long defunct military pacts such as the Baghdad Pact or CENTO (Central Treaty Organisation) and SEATO (South East Asian Treaty Organisation) during the height of the cold war, and the USA showed some favour to Pakistan and gave it some military aid during the late 1950s, early 1960s and 1980s. Pakistan also moved closer to its enemy's enemy, China in the mid-1960s, when India had a serious border dispute with China. The Soviet Union is long gone, there has been rapprochement between India and China, and the USA might be seen to view both Pakistan and India as allies in its war on global terror, even if it is less wary of India's nuclear power. In the light of Maoz et. Al (2006) even if ethnic affinity between India and Pakistan has steadily declined for over a century; external policy divergence has probably diminished recently.

In short, only advanced and highly economically inter-dependent democracies would be at peace with one another, which possibly precludes developing countries like India and Pakistan. Dorussen & Ward (2009), however, rehabilitate the role of trade in producing peace through a novel channel. They argue that trade has important *indirect* effects over and above the interdependence induced by bilateral trade. Increased trade generally, may do little to mollify war-like tendencies between a pair of countries, but if each of these countries interacts considerably with third countries, it will be not in their interests to go to war with each other, as it disrupts other links and networks. In other words, any two countries are unlikely to go to war with each other if there trade with the rest of the world is substantial even when their bilateral trade dependence is low. They label this phenomenon as *mutual* dependence; although our formulation based on general openness is different to theirs it will have a key role to play in our results. Figure 1 above shows the insignificant levels of bilateral trade between India and Pakistan, but figure 2 demonstrates their increasing exposure to world trade.

THE COST OF PEACEFUL ACTIONS: STRATEGIC INTERACTION

In this section we model the political costs of peace, entailing concessions to one's adversaries. Additionally, we try to demonstrate how increased globalization (opportunity costs of lost trade) or democratisation (the Kantian peace) can help abate conflict by lowering the cost of making concessions to one's neighbours. This corresponds closely to the two schools of thought regarding the liberal peace. To analyse these factors we require a two country expected utility model of non-cooperative strategic interaction.

The two countries: India and Pakistan are indexed by subscripts *I* for India and *P* for Pakistan. There are two states of nature, denoted by superscripts: one more peaceful or dovish (*D*), and the other associated with greater hawkishness (*H*). Their probabilities are defined as π and *1 - π*, respectively. The probability of either state is in turn affected by actions and efforts; (*a*) for India and (*e*) for Pakistan. These are also the strategic variables employed by the two sides to the conflict. We postulate that the probability of the peaceful state π rises with the input of action and effort by the two sides, but at diminishing rates. One can imagine a range of activities by one or both sides if they wish to promote peace, including a greater willingness to compromise, reduce military expenditure, devoting more resources to peaceful economic development, or a greater willingness to respond to calls for peace by third-parties such as the UN and the United States.

Actions and efforts to seek peace entail costs for each party. The costs of actions to promote peace could take a variety of forms, but, above all, there is the loss of face to either party's hawkish domestic political constituencies, including the military establishment and extremist political parties in both countries. Increased globalization may, however, augment the stock of rhetoric available to politicians who wish to push their 'peace' agenda through the political process. Secondly, and in a more palpable sense, increased international trade and the growth it brings may provide the additional resources to buy off domestic 'war' lobbies. A more democratic government, following military rule, may similarly use its mandate from the people to justify greater peace and reduced military expenditure.

The expected utility of India is given by

$$U_I = \pi(a,e)U_I^D(E_I^D + S_I^D) + (1-\pi)(a,e)U_I^H(E_I^H + S_I^H) - Z(a(T)) \qquad (1)$$

Where $U^D{}_I$ and $U^H{}_I$ denote utilities or pay-offs in dovish and hawkish states respectively, weighted by the probabilities of the two states. $E_I^D + S_I^D$, $E_I^H + S_I^H$ indicate the exogenous pair of payoffs from consumption and security expenditure respectively in the less belligerent and more belligerent states respectively. The difference is that in dovish state security spending is lower and private consumption higher than in the hawkish state. There will also be more trade between the two countries. Most importantly, the dovish state of nature will imply greater poverty reduction. *Z* is the cost function of undertaking the action, *a*. Action, *a*, increases the probability of peace, π, however, undertaking it entails a cost, as described above. *T* indicates greater globalization (more trade with the rest of the world), and this is postulated to reduce the cost of making peace via the cost function (*Z*) as discussed above, $Z_{a1} < 0$. Also, $\pi_a > 0$, but $\pi_{aa} < 0$; there are diminishing returns to these actions. However, both $Z_a > 0$ and $Z_{aa} > 0$.

Turning to Pakistan, we symmetrically have

$$U_P = \pi(a,e)U_P^D(E_P^D + S_P^D) + (1-\pi)(a,e)U_I^H(E_P^H + S_P^H) - L(e(T,P)) \qquad (2)$$

L is the cost of effort, *e*, which increases the probability of peace, *π*. As with India, greater globalization lowers the marginal cost of making peaceful concessions, but so does a hybrid concept called increased democratisation (*P*) for Pakistan only given the nature of swings there between democratically elected governments and military rule; L_{e1} and $L_{e2} < 0$. Also, $\pi_e > 0$, but $\pi_{ee} < 0$, $L_e > 0$, and $L_{ee} > 0$.

In the non-cooperative or Cournot-Nash game each side maximises its own utility function with respect to its own choice variable. For India, it implies maximising utility, Equation (1), with respect to *a* as shown by

$$\pi_a \left[U_I^D(\cdot) - U_I^H(\cdot) \right] = Z_a \qquad (3)$$

Pakistan maximises Equation (2) with respect to *e*

$$\pi_e \left[U_P^D(\cdot) - U_P^H(\cdot) \right] = L_e \qquad (4)$$

Note that in Equations (3) and (4) each side will equate its marginal benefit from peaceful behaviour to the corresponding marginal cost.

A number of factors could lead to greater peaceful action and less conflict. First, greater globalisation or a greater commitment to free trade (McDonald, 2004) and/or an increase in bilateral trade (a rise in *T*) because of, say, the establishment of a free trade area, and increased international (not necessarily just bilateral) trade lower the marginal cost of peaceful behaviour (Z_{a1}, $L_{e1} < 0$). Analytically this means a change in the first-order conditions for both India and Pakistan to:

$$\pi_a \left[U_I^D(\cdot) - U_I^H(\cdot) \right] = Z_{a1} dT \qquad (5)$$

$$\pi_e \left[U_P^D(\cdot) - U_P^H(\cdot) \right] = L_{e1} dT \qquad (6)$$

This pertains to the trade effects of the liberal peace. Alternatively, there could be a rise in the exogenous pay-offs in terms of consumption expenditure (*E*) due to increased growth, in (1) and (2) above, leading to a similar outcome, but this time increasing the marginal benefits of peaceful action on the right-hand sides of (5) and (6). The costs of peaceful actions may be easier to bear when countries (in this case only Pakistan) are more democratic, as there may be a mandate from the people to engage in more poverty reduction, greater social sector spending and lower military expenditure. This corresponds to the purer form of the Kantian peace and will cause the first order condition for Pakistan to become:

$$\pi_e \left[U_P^D(\cdot) - U_P^H(\cdot) \right] = L_{e2} dP \qquad (7)$$

This will raise the level of peaceful effort exercised by Pakistan, but not by India if the two strategies are substitutes. This could be argued to be the case at present. As India moves closer to the United States, and with the latter's global war on terror, more pressure is exerted on Pakistan to make unilateral concessions towards India since 2001. We could even argue that India is free riding on Pakistan.

EMPIRICAL ANALYSIS

Hypotheses:
H_1: Greater bilateral inter-state commerce between India and Pakistan, as well as greater multilateral trade with third countries lowers various forms of bilateral inter-state conflict. This corresponds to the version of the liberal peace that stresses the opportunity cost of lost trade due to hostilities. This hypothesis follows from our literature review and the theoretical model above. Note the right-hand sides of (5) and (6) above, where an increase in globalization or bilateral trade (T) lowers the marginal cost of peaceful behaviour for both countries.

H_2: More military spending as a result of heightened insecurity raises conflict or because of the processes described by Mansfield and Snyder (2005); the democratic transition may enhance nationalism and militarization. The marginal utility of security spending rises; indicated by a decline in the marginal benefit of peaceful behaviour on the left-hand side of (3) and (4).

H_3: Development expenditure (such as public spending on education) should lower conflict, because of economic growth which enables more consumption in equations (1) and (2), as the pay-offs in general consumption increase, particularly in the peaceful state.

H_4: GDP growth will decrease inter-state conflict; via the capitalist peace type arguments (Gartzke, 2007). This raises utility, as consumption rises in (1) and (2), and the potential marginal utility of peaceful behaviour in (3)-(7).

H_5: Increases in dyadic democracy scores will lead to less conflict, related to the pure form of the 'Kantian' peace. Increased democracy may lower the cost of compromise with former enemies, as in (7) where it leads to a fall in the marginal cost of compromise.

Data:
Since inter-state conflict involves at least two parties, it is a dyadic concept. We construct dyadic proxies for India-Pakistan inter-state trade, military burden, development expenditure, economic development and democracy to test the five hypotheses above. Full data definitions and sources are given in the web appendix.

Since we are interested in the evolution of India-Pakistan conflict over a period of the last 55 years, we will use Uppsala/PRIO and Correlates of War Project (COW) inter-state war data set (Jones et al, 1996; Ghosn et al, 2004) instead of events based data sets. Events data is not available for the entire period. Also, our macroeconomic and democracy data varies annually which limits the use of daily events information.

Generally dyadic trade is captured by sum of imports and exports between actor and target countries (Polachek & Seglie, 2006). We construct a composite measure of India-Pakistan trade by taking Pakistan's total trade with India as percentage of Pakistan's total trade.(*Tpitp*). We expect the bilateral trade proxy to be negatively related with conflict. If trade reduces conflict, trade with more countries should reduce conflict even more. Thus, it is important to investigate how more trade with the rest of the world affects India-Pakistan hostilities. We construct 4 dyadic proxies to measure trade dependence (see table 1).

Above discussion shows that both countries incur high levels of military spending which means that average effect of military expenditures of both countries on Conflict would be positive. However, military expenditures can reflect hostility, as well as deterrence (Polachek & Seglie, 2006) and thus may also be considered as assets. Thus we would also like to examine country specific dynamics of military spending to find out how each country's military expenditure/ military burden affects the dispute. We already know that Pakistan's spending on military expenditure as a proportion of GDP is higher than India's (figure 3). Additionally, since military expenditures may also capture the capability of a country to deal with civil unrest or intra-state conflict, Indian military expenditure can also be explained in terms of the high prevalence of continuing intra-state conflicts in various regions of India. Pakistan has had fewer civil wars. This may mean that Pakistan's military burden captures its security concerns vis-à-vis India solely. Thus to go beyond average dyadic investigation of the effect of military burden on conflict, we utilize 2 dynamic proxies of military burden which take military expenditure of Pakistan as a ratio of Indian military expenditure (*Lmilbrd2*) and the inverse (*Lmilbrd3)* in addition to taking average of India and Pakistan's military expenditures (*Lmilbrd1*). The last two proxies of military burden capture the dynamic interaction between India and Pakistan's military expenditure. If, as we suggest, Pakistan's military burden is more closely related to conflict than the Indian one, *Lmilbrd2* would have a positive sign and the inverse (*Lmilbrd3*) should have a negative sign, thus showing denominator effect of the inverse.

To capture democracy levels for India and Pakistan, we turn to the Polity IV project at the Center for Systemic Peace at George Mason University. Polity IV computes a combined polity score by subtracting autocracy scores from the democracy scores for the corresponding year. The value of this Polity score ranges from -10 to 10, where -10 denotes the highest autocracy level, and 10 the maximum democracy score. Although India always takes a high positive value of 7 or above, Pakistan frequently takes on negative values. We construct a dyadic variable of democracy for both countries by combining (multiplying) their Polity scores, following Polachek & Seiglie (2006). We add 10 to each countries polity series to make the negative Polity values positive so that our combined democracy score may capture the variations in the democratization process only on a positive scale. The dyadic democracy variable shows values as low as 50 on the scale of 0 to 400 when there are high levels of political dissimilarities between Pakistan (dictatorship) and India (democracy), and as high as 350 when both countries are governed by democracies.

We take the weighted average of India and Pakistan's real GDP per capita growth rates (*Gpi*) as the dyadic proxy of economic progress for both countries. We constructed the series for both countries by dividing GDP at constant prices taken from economic surveys, and dividing it by population levels. The data was later tallied with GDP per capita series available at the World Development Indicators (2006) data set. We also constructed a proxy for social development based on India and Pakistan's education data[4]. India (over 1 billion) and Pakistan (160 million) are one of the most densely populated countries in the world. In line with the earlier literature, we also take the average of both countries populations as a standardising variable in our analysis (Polachek, 1997).

Methodology:

As we can see, the data set is purely time series which may mean that most of the variables may suffer from random walk. Generally that is the case with most time series. If a regression employs non stationary or a mix of stationary and non-stationary variables, the error term would suffer from autocorrelation which would in turn mean that the error term obtained from such a regression would also be non stationary. Generally, non-stationarity in variables may be solved by taking first difference of the series. How ever, it is not necessary to always take first difference and stationary may be achieved at level by taking time lags of variables where time trends or random walk would not be observed anymore.

In our case, we have taken dyadic proxies, and thus the problem of random walk may have been minimised and we may obtain stationarity for our variables at level rather than first differences.   Table 1, undertakes unit root analysis to test for stationarity in the dyadic variables under modified or augmented Dickey-Fuller t test (DF-GLS) proposed by Elliot, Rothenberg & Stock (1996) where each series is transformed via a generalised least squares (GLS) regression before performing the test. The results show that we could effectively solve for unit-root (random walk) at levels. Though for some variables, we could only obtain stationarity after quite a number of lags. For-example, Tpitp (Figure 1) clearly suffers from random walk for the periods between 1950 and 1970, whereas in comparison for most other variables presence of random walk is only observed in a smaller part of the series and only for smaller time periods. In case of Tpitp,as expected, taking lags up to 15 solve for random walk. In other words, the stationary series for Tpitp would now consider periods after 1965 when there is a clear break in the random walk. In contrast, the economic development variable capturing the dyadic growth rates for India and Pakistan (*Gpi*) has been observed to be a perfectly stationary series (figure 4). Unit-root test confirms this observation as stationarity is achieved at level with 0 lags.

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[4] There is an insufficiently long time series for public health spending data for India.

Figure 4: Pakistan and India's Dyadic Growth Rates
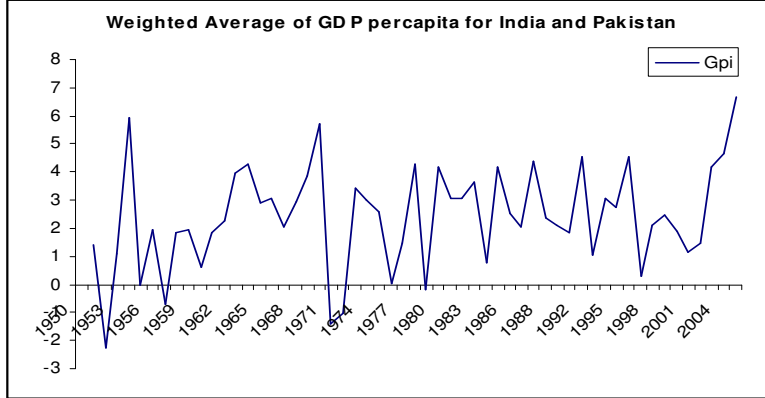
Though we have solved for unit-root for all dyadic variables (see table 1), any simple least square regression analysis may still lead to spurious results due to the endogeneity problems among most variables (from trade, military expenditure and growth to conflict and vice-versa). We need to utilize a simultaneous equation model where potential endogeneities are addressed. Since our data is time series, we will use Vector Autoregressive model (VAR) which is an extension of univariate autoregressive (AR) models to capture the evolution and the interdependencies between our multiple time series (Sims, 1980).

Our reduced form general VAR model for conflict is as follows:

$$Conf_t = \alpha_1 + \alpha_{2,t-i}Conf_{t-i} + \alpha_{3,t-i}Tr_{t-i} + \alpha_{4,t-i}Mil_{t-i} + \alpha_{5,t-i}E_{t-i} + \alpha_{6,t-i}G_{t-i} + \alpha_7 Demo_t + \alpha_8 P_t + \varepsilon_t \quad (8)$$

Where $Conf_t$, Tr_{t-i}, $Mil_{t-i}, E_{t-i}, G_{t-i}, Demo_t$ and P_t depict inter-state conflict, bilateral or multilateral trade, military burden, education expenditure, real growth rate of GDP per capita, dyadic democracy scores and population respectively; t ranges from 1950-2005 and $i = 1,....,p$. Here p is the optimal lag structure for the VAR model. $\alpha_{2,t-i}$ $\alpha_{3,t-i}$ $\alpha_{4,t-i}$ $\alpha_{5,t-i}$ and $\alpha_{6,t-i}$ are the coefficients respectively. Proxies for conflict, bilateral and multilateral trade, economic progress, military burden and social development will be treated as potentially endogenous, whereas dyadic democracy and population will be viewed as purely exogenous concepts.

All variables in a VAR are treated symmetrically by including for each variable an equation explaining its evolution based on its own lags, and the lags of other variables in the model. The number of equations in a VAR model depends upon the number of endogenous variables; each endogenous variable is regressed on its lagged value, and the lagged values of all other endogenous variables as well as any number of exogenous variables. This solves the problem of endogeneity among variables. In this sense VAR model is just a seemingly unrelated regression (SUR) model with lagged variables and/or deterministic terms as common regressors, so that the regression results for each equation can be interpreted in the same manner as we do for

ordinary least square estimators. After fitting a VAR we may want to know which way causalities run. Before we run VAR, we have to choose optimal lag structure for each regression specification to determine the exact lag length required for each endogenous dependent and endogenous independent variable to solve for endogeniety. In other words choice of optimal lag length is the identification test of each regression model, when endogenous variables are perfectly identified.

Table 1 DF-GLS Unit Root Tests

Variables	Lag length	With intercept	With intercept and trend
Fatal (annual fatality levels, 0-6)	1	-3.528***(Ng-Perron)	-3.774*** (Ng-Perron)
Volfatal (precise numbers)	1	-4.789*** (Ng-Perron)	-4.844*** (Ng-Perron)
Dur (days of conflict)	1	-4.058*** (Ng-Perron)	-4.233*** (Ng-Perron)
Hiact (highest action in disputes)	1	-2.382** (Ng-Perron)	-2.590 (Ng-Perron)
Hstlev (annual hostility levels, 1-5)	1	-2.371** (Ng-Perron)	-2.512 (Ng-Perron)
Cnf (conflict intensity ranges given by the PRIO-Uppsala data set)	1	-3.025*** (Ng-Perron)	-4.082*** (Ng-Perron)
Tpitp (Pakistan-India bilateral trade as a proportion of Pakistan's trade)	15	-1.112* (Ng-Perron)	-1.861 (Ng-Perron)
Xmpi (Pakistan's total global trade as a ratio of India's global trade)	2	-2.710*** (Ng-Perron)	-2.860* (Ng-Perron)
Xmip (inverse of the above)	8	-4.951*** (MAIC)	-4.923*** (MAIC)
Lxpi (Log mean of Pakistan's total exports over Pakistan's GDP and India's total exports over India's GDP)	0	-4.769*** (SIC)	-4.929*** (SIC)
Lmpi (Log mean of Pakistan's total imports as a proportion of Pakistan's GDP and India's total imports as a ratio of India's GDP)	1	-4.511*** (SIC)	-4.382*** (SIC)
Lmilbrd1 (Log GDP weighted average of Pakistan and India's defence expenditures)	0	-	-4.308*** (SIC)
Lmilbrd2 (Log of Pakistan's defence expenditure over Pakistan's GDP as a ratio of Pakistan's defence expenditure over Pakistan's GDP plus India's defence expenditure over India's GDP)	5	-1.911* (Ng-Perron)	-2.686* (Ng-Perron)
Lmilbrd3 (Log of India's defence expenditure over India's GDP as a ratio of Pakistan's defence expenditure over Pakistan's GDP plus India's defence expenditure over India's GDP)	5	-2.128* (Ng-Perron)	-2.831* (Ng-Perron)
Ledupi (log GDP weighted average of per capita education expenditure in India and Pakistan)	1	-	-5.374*** (SIC)
Gpi (weighted average of GDP per capita growth rates for both countries)	0	-4.256*** (Ng-Perron)	-4.276*** (Ng-Perron)
Demopi (Combined Democracy score of India and Pakistan)	7	-2.790*** (Ng-Perron)	-2.997*** (Ng-Perron)
Poppi (Average of India and Pakistan's total population)	10	-	-7.392*** (MAIC)

-***, ** and * shows significance at 1%, 5%and 10% level respectively
- The Lag structure is selected through (1) Ng-Perron sequential t (Ng-Perron), (2) the minimum Schwarz information criterion (SIC), (3) the Ng-Perron modified information criterion (MAIC) and (4) Dickey-Fuller test (D-Fuller).

Results:

Table 2

Variables	VAR Regression Equations for Fatal under Multiple Specifications for Trade				
	1	2	3	4	5
Bilateral Trade					
Tpitp (16)	-0.23**				
Mutilateral Trade					
Xmpi(3)		-0.77*			
Xmip (9)			-2.68***		
Lxpi2(1)				-4.78***	
Lmpi2(2)					-0.33
Military Burde					
Lmilbrd1 (1)	3.26*	3.38**	2.26*	2.42*	3.09**
Social Development					
Ledupi (2)	-8.34***	-8.07***	-7.70***	-7.02***	-8.43***
Economic Growth					
Gpi (1)	-0.35***	-0.34***	-0.36***	-0.39***	-0.33***
Exogenous Variables					
Demopi (8)	-0.004*	-0.006***	-0.006***	-0.002	-0.005***
Poppi (11)	0.094***	0.094***	0.101***	0.103***	0.103***
N	38	45	45	45	45
R2	0.61	0.46	0.47	0.55	0.44
VAR(p)	VAR[2]	VAR[1]	VAR(1)	VAR[1]	VAR[1]

-***, ** and * shows significance at 1%, 5%and 10% level respectively
- VAR[p] reports lag-order for each VAR model based on final prediction error (FPE), Akaike's information criterion
(AIC), Schwarz's Bayesian information criterion (SBIC) and the Hannan & Quinn information criterion (HQIC),

The most appropriate proxy and the one which is most closely linked to conflict (or its severity) is number of deaths. Thus VAR equation 8 is first run for the number of fatalities, *Fatal*. Table 2 shows the results for different measure of trade with average of India and Pakistan's military burden (*Milbrd1*). Result on bilateral trade share (*Tpitp*) suggests that trade between Pakistan and India is negatively related with conflict. However, the low values of $\alpha_{3,t-i}$ coefficients suggest that bilateral trade has a limited role to play in conflict mitigation. Though low trade levels between both countries may very well be the cause of the ongoing conflict because right after 1965 war the bilateral trade figures plummeted to near zero, here we do not need to worry about reverse causality because our VAR model takes care of potential endogeneity problems between F*atal* and *Tpitp.* On the other hand, *Lmilbrd1, is* positively related with conflict and the relationship is significant. Military expenditures on average do not have deterrent effect (in terms of fewer fatalities), but high military expenditures by both sides could reflect an arms race between both countries. Dyadic education expenditures *Ledupi* and growth rates *Gpi* are significantly related to conflict mitigation, and the size of coefficients suggests that the potential of education spending in decreasing

hostilities is substantial. Democracy weakly decreases the severity of conflict, because of the low values of coefficients and their insignificance in certain cases.

Table 2 also show that most proxies of *multilateral* trade (the two countries trade with the world) are negatively related with conflict and the relationship is significant. The coefficients can be shown to be greater than when individual multilateral trade is included.[5] Another interesting observation which can be made from Table 2 is that coefficient for *Xmpi* is much smaller than coefficients on *Xmip* where in the later variable, Indian trade with rest of the world comes in the numerator, while in former case Pakistan's trade with rest of the world is present in the numerator. One explanation for higher coefficients of *Xmip* is that Indian integration with rest of the world would matter more in determining the fall in hostilities in comparison to Pakistan's integration with rest of the world. This may also mean that traditional closeness of Indian economy may form such political atmosphere where costs of peace were higher than benefits and as India opens up further, especially after 1990s, the costs of peace with Pakistan have been falling. Again this result is accordance to our theoretical model. Please note that costs of peace would also fall for Pakistan if it integrates further with rest of the world including India, but at a much slower rate than India. Within the trading sector, it is the exporting sector for both Pakistan and India which has been closely related with conflict mitigation and in contrast to Lxpi, coefficients on *Lmpi* show that rising imports do not abate conflict significantly. The results for military burden, education expenditure, economic performance and democracy remain unchanged for all the specifications.

Figure 5: Fatality Score between India and Pakistan

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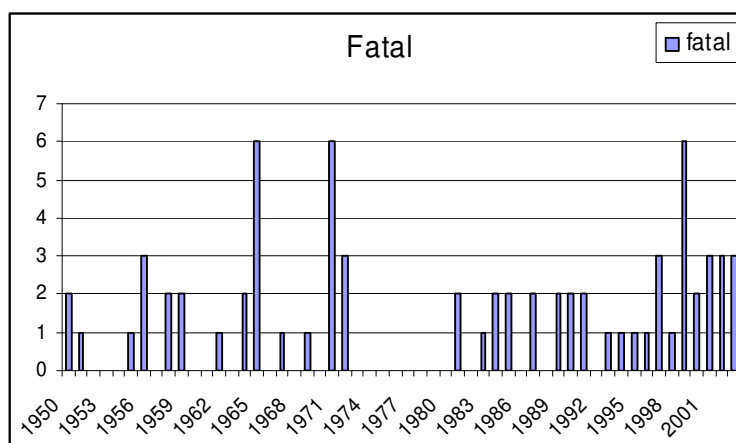
[5] The results can be provided on request, and the nature of the results remains unchanged.

What would be the impact of a 100 percent increase in bilateral trade or multilateral trade on conflict (fatalities)? If multilateral trade or bilateral trade doubles, the coefficients in tables 2 and 3 reveal that fatalities would decrease by at least 200 percent (2 points) in case of multilateral trade and only 20 percent (less than a half point) in case of bilateral trade. This means if *Fatal* has scored 5, and trade with rest of the world doubles, it will go down to score 3. Generally, *Fatal* has taken up score of 3 or 2 (see figure 5 below), which means usually battle deaths have been either 26-100 deaths in case of score 2 or 101-250 deaths in case of score 3. With high coefficients of multilateral trade in reducing fatal, one may confer that traditionally multilateral trade (relationship with outside world) have been playing a key role to not only contain fatalities but also the possibility of out right war between India and Pakistan. In contrast, bilateral trade has a much smaller effect on containing fatalities and thus currently plays a very limited role in conflict mitigation between India and Pakistan.

Though *Fatal* is the preferred proxy and *Volfatal* is the second close one for conflict, Dur (Days of conflict), *Hiact* (Higest Action in disputes) and *Hstlev* (Annual Hostility Levels) are also useful proxies. They capture the severity of conflict with different angles, and would act as robustness tests for the results on Fatal as well as serves for the statistical validity of the larger model. Furthermore, utilizing more proxies of conflict provides better insight into the nature of conflict, especially when causality tests are undertaken. Remember, Causality tests would show which measures of conflict would have an effect if any on our endogenous independent variables (i.e, military burdern, bilateral or multilateral trade). The results based on *Volfatal*, *Cnfpi, Dur*, *Hstlvl* and *Hiact* are reported in Table 3. They confirm the validity of all the 5 hypotheses proposed at start of our empirical section, and the preceding theoretical analysis. More trade, increased education expenditure, higher GDP per capita growth rates, a greater democratic orientation, all exert downward pressure on conflict, as all of these variables are significant in most cases, and always carry the right signs. A comparison of coefficients suggests that multilateral trade with the world has by far the most dominant effect on conflict mitigation than any other variable. Note that in Table 3 we only consider multilateral trade, and not bilateral India-Pakistan trade.[6] Education spending comes second in its effectiveness in enhancing peace. The results in Table 3 also show that annual battle deaths, severity of conflict, duration of escalation, hostility levels and highest hostility level decrease when both countries score high on democracy. Again, persistently low values taken by democracy means that political orientation plays a less prominent role in explaining the severity of dispute or levels of escalation. The two countries entered into an outright war even when both were democracies. The 'Kargil' war of 1999 is the case in point. In addition to Milbrd1 we have also utilized two more proxies of military burden introduced in earlier section on data definitions: As expected *Lmilbrd2* (when Pakistan's military spending is in the numerator of two countries

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[6] Space constraints prevent us from reporting all our findings, but coefficients on bilateral trade are consistently smaller than comparable coefficients on multilateral trade.

Table 3: VAR Regression results for Various Measures of Conflict

Variables	VAR Regression Equations under Multiple Specifications for Conflict and Military Burden														
	Volfatal			Cnfpi			Dur			Hstlvl			Hiact		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Trade [a]															
Lxpi (1)	-10996***	-9971***	-6662***	-2.60***	-2.48***	-1.22*	-451.4**	-413.0**	-182.81	-6.81***	-6.60***	-4.07**	-25.75**	-25.32***	-16.08*
Military Burden															
Lmilbrd1 (1)			3255*			0.31			-55.94			0.97			4.47
Lmilbrd2 (6)	8276***			2.91***			604.72***			5.33*			19.09		
Lmilbrd3(6)		-3352**			-1.46***			-283.85**			-2.68*			-9.98	
Social Development															
Ledupi (2)	-397.02	-435.58	-6011.6**	-0.74*	-0.69	-1.48	-146.53	-130.7	-180.69	-1.56	-1.47	-3.34	-9.09*	-8.75*	-17.08
Economic Growth															
Gpi (1)	-517.07***	-524.78***	-554.46***	-0.86**	-0.084*	-0.09**	4.89	4.97	3.63	-0.25*	-0.25*	-0.26*	-1.28**	-1.26**	-1.38*
Exogenous Variables															
Demopi (8)	1.36	1.06	0.06	-0.001*	-0.001*	-0.002*	-0.336*	-0.342*	-0.372*	-0.001	-0.001	-0.001	-0.011	-0.012	-0.012
Poppi (11)	36.38*	34.66*	71.54***	0.023***	0.021***	0.027***	3.531*	3.209*	4.248*	0.051**	0.048**	0.058**	0.253***	0.247***	0.295***
N	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
R2	0.45	0.44	0.42	0.53	0.51	0.42	0.40	0.37	0.31	0.42	0.42	0.38	0.39	0.40	0.37
VAR(p)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)	VAR(1)

-***, ** and * shows significance at 1%, 5% and 10% level respectively
- VAR(p) reports lag-order for each VAR model based on final prediction error (FPE), Akaike's information criterion (AIC), Schwarz's Bayesian information criterion (SBIC) and the Hannan & Quinn information criterion (HQIC),
- [a] Regressions for *Bilateral trade (tpitp)* are also undertaken and *Tpitp* enters the Conflict equation (8) with a negative sign confirming positive role of trade between Pakistan and India in conflict mitigation or vice versa.

relative military expenditure) is positively related with conflict and *Lmilbrd3* (India on the numerator of relative military spending) is negatively related with conflict. This may indicate that any increase in military expenditure by Pakistan compared to India will be correlated with higher conflict. Indian military efforts are also directed to its civil wars and security concerns with other states, and thus in case of *Lmilbrd2 and Lmilbrd3*, the explanatory power may come from Pakistan's military expenditure.

We ran Granger causality tests for each VAR specification. A summary of Granger causality tests are provided in Table 4 for all endogenous regressors of conflict, and where there is an instance of reverse causality it is noted. The results in Table 4 show that all regressors, except imports Granger cause conflict while the nature of the relationship (+ or -) has been provided in tables 2 and 3. We also witness some instances of reverse causality, and these require some elaboration. The reverse causality in the India-Pakistan bilateral trade measures show that low levels of trade are also an outcome of India-Pakistan conflict which has spanned more than 50 years. Any decrease in hostility levels would also exert a positive effect on bilateral trade which would create fertile grounds for dispute resolution. Reuveny & Kang (1998) also found many instances of reverse causality between conflict and bilateral trade, when they applied Granger causality tests to trade and conflict between 16 dyads. In the India-Pakistan case they found that conflict Granger causes bilateral trade (with fairly short lags) and not vice-versa, unlike our findings of reverse causality. Our data set, however, extends to a longer period compared to Reuveny & Kang (1998), as it starts at an earlier period and ends at a later date when trade was greater. The presence of reverse causality in average military spending is also not a surprise. This means that India-Pakistan conflict is also a significant cause of historically high military expenditures between both countries. Reduction of hostilities would thus favourably affect the military burden in both countries, and both India and Pakistan would have more resources to channel towards its development and poverty reduction strategies. The greater allocation of funds for defense due to ongoing conflict, may also strangle development spending. The reverse causality from conflict to education expenditure could explain this process. Reverse causality between conflict measures and proxies of education expenditure highlight the resource constraints faced by both sides due to their rivalry where funds allocated to defense seems to crowd out public investment in development sector. We also find that there is reverse causality between *Lxpi* and *Hstslvl* and *Hiact*. This result highlights the economic implications of conflict. If hostility levels rise and conflict moves closer to outright war, it will diminish the export capability with rest of the world for both countries. This will have negative effects on growth potentials also.

Table 4. Granger Causality Wald Tests

Direction of Causality	Causes	RC	Direction of Causality	Causes	RC
$Tpitp \rightarrow Fatal$	$(\surd)^{***}$	$(\surd)^{*}$	$Lmilbrd\,2 \rightarrow Hstlvl$	$(\surd)^{*}$	$\times$
$Xmpi \rightarrow Fatal$	$(\surd)^{**}$	$\times$	$Lmilbrd\,2 \rightarrow Hiact$	$\times$	$\times$
$Xmip \rightarrow Fatal$	$(\surd)^{***}$	$\times$	$Lmilbrd\,3 \rightarrow Dur$	$(\surd)^{*}$	$\times$
$Lxpi \rightarrow Fatal$	$(\surd)^{***}$	$\times$	$Lmilbrd\,3 \rightarrow Hiact$	$\times$	$\times$
$Lxpi \rightarrow Volfatal$	$(\surd)^{***}$	$\times$	$Lmilbrd\,3 \rightarrow Fatal$	$(\surd)^{***}$	$\times$
$Lxpi \rightarrow Cnfpi$	$(\surd)^{***}$	$\times$	$Lmilbrd\,3 \rightarrow Volfatal$	$(\surd)^{***}$	$\times$
$Lxpi \rightarrow Dur$	$(\surd)^{***}$	$\times$	$Lmilbrd\,3 \rightarrow Cnfpi$	$(\surd)^{***}$	$\times$
$Lxpi \rightarrow Hstlvl$	$(\surd)^{***}$	$(\surd)^{***}$	$Lmilbrd\,3 \rightarrow Hstlvl$	$(\surd)^{**}$	$\times$
$Lxpi \rightarrow Hiact$	$(\surd)^{**}$	$(\surd)^{*}$	$Gpi \rightarrow Fatal$	$(\surd)^{***}$	$\times$
$Lmpi \rightarrow Fatal$	$\times$	$\times$	$Gpi \rightarrow Volfatal$	$(\surd)^{***}$	$\times$
$Lmilbrd\,1 \rightarrow Fatal$	$(\surd)^{***}$	$(\surd)^{***}$	$Gpi \rightarrow Cnfpi$	$(\surd)^{***}$	$\times$
$Lmilbrd\,1 \rightarrow Volfatal$	$(\surd)^{***}$	$(\surd)^{*}$	$Gpi \rightarrow Dur$	$(\surd)^{***}$	$\times$
$Lmilbrd\,1 \rightarrow Cnfpi$	$\times$	$(\surd)^{*}$	$Gpi \rightarrow Hstlvl$	$(\surd)^{*}$	$\times$
$Lmilbrd\,1 \rightarrow Dur$	$\times$	$(\surd)^{***}$	$Gpi \rightarrow Hiact$	$(\surd)^{*}$	$\times$
$Lmilbrd\,1 \rightarrow Hstlvl$	$\times$	$(\surd)^{*}$	$Ledupi \rightarrow Fatal$	$(\surd)^{***}$	$(\surd)^{***}$
$Lmilbrd\,1 \rightarrow Hiact$	$\times$	$(\surd)^{***}$	$Ledupi \rightarrow Volfatal$	$(\surd)^{***}$	$\times$
$Lmilbrd\,2 \rightarrow Fatal$	$(\surd)^{***}$	$\times$	$Ledupi \rightarrow Cnfpi$	$(\surd)^{*}$	$(\surd)^{*}$
$Lmilbrd\,2 \rightarrow Volfatal$	$(\surd)^{***}$	$\times$	$Ledupi \rightarrow Dur$	$(\surd)^{***}$	$(\surd)^{***}$
$Lmilbrd\,2 \rightarrow Cnfpi$	$(\surd)^{***}$	$\times$	$Ledupi \rightarrow Hstlvl$	$\times$	$(\surd)^{***}$
$Lmilbrd\,2 \rightarrow Dur$	$(\surd)^{***}$	$\times$	$Ledupi \rightarrow Hiact$	$(\surd)^{*}$	$(\surd)^{**}$

-***, ** and * shows significance at 1%, 5% and 10% level respectively, RC stands for reverse causation, $\surd$ means causes and $\times$ means not causes; For the nature of relationships (+ or -) between all endogenous dependent and endogenous independent variables covered above, please consult table 2 and 3: Causality tests are based on VAR regressions presented in these tables.

Table 4, also high-light dynamics of military burden in India and Pakistan and nature of conflict. For example, if conflict lasts for more days, or hostilities rise or severity of action (i.e., in extreme case of out right war) rise between both parties, all would have a significant and positive shock on military expenditures in India and Pakistan as there is a presence of reverse causality between *Lmilbrd1* and these measure of conflict but no presence of causality. This means that arms race between India and Pakistan would not lead to rise in hostilities, neither increase the yearly duration of the conflict or lead to highest action (out-right war). This is an important result suggesting that higher military expenditures by both sides also have a deterrent effect on conflict, but if fatalities in the conflict rise, it will put a positive pressure on other measures of conflict, which in turn have positive shock on the arms race because we also find in table 4 that *Lmilbrd1*, in presence of reverse causation, appears to also positively and significantly cause *Fatal* or *Volfatal.* In contrast, *Lmildbrd2* and *Lmilbrd3,* which are dynamic interactions of Indian and Pakistani military expenditures, significantly cause conflict while there is no reverse causation. This points out

towards the prevalent mistrust between both parties and the reason behind the arms race, where Pakistan's military expenditure is more sensitively related with conflict than the Indian military expenditure. Though, Pakistan may see its rise in military expenditure as deterrence to match Indian military expenditure, it would in effect has a positive effect on conflict as this would not only sustain hostilities between both parties at higher levels of severity but also the duration of the conflict on average would rise. Economic growth Granger causes conflict, and the relationship is negative. The growth patterns of both countries are, however, independent of conflict as far as reverse causality is concerned, which is an important finding. The relationship is highly significant at a 1% level in all the observed instances of Table 4.

CONCLUSIONS

Conflict between India and Pakistan has significantly hampered bilateral trade between the two nations. However, we also find that the converse is also true; more trade between India and Pakistan decreases conflict and any measures to improve bilateral trade will be a considerable confidence building measure. A regional trade agreement along the lines of a South Asian Free Trade Agreement (SAFTA) has a potential for the improvement of relations between India and Pakistan on a long-term basis. This might even lead to indirect networking benefits (or getting to know each other) that promotes peace, as indicated by Dorussen & Ward (2008). Pakistan and India's general degree of openness to *world* (and not bilateral) trade is, however, the *dominant* economic factor in conflict resolution. This echoes, McDonald's (2004) finding that generally *freer* trade, not just trade interdependence facilitates peace, as well as Dorussen & Ward (2009) suggestion that increased multilateral trade may increase mutual interdependence, and the indirect costs of bilateral hostility driven trade disruption.

Some of our results may appear to suggest that Pakistan's relative military expenditure is conflict enhancing, whereas Indian relative military expenditure has a deterrent effect on conflict. This result, however, needs to be interpreted with caution. It does not necessarily mean that Pakistan is the principal actor initiating inter-state conflict with India. Rather it means that India, the regional hegemon, has other domestic and international concerns to which its defense spending is targeted, besides its disputes with Pakistan. Indeed, there is some reverse causality between some of the military proxies and conflict suggesting that Pakistan's military build ups may be more reactive. Overall military expenditures are still at high levels in both countries, diverting scarce resources away from development spending, such as on education and poverty reduction. Education spending is good for both peace and economic progress.

In an ideal world increased dyadic democracy between pairs of nation should reduce inter-state hostility according to the purer form of the Kantian liberal peace hypothesis; this relationship in our case is present but weak. Peace

initiatives, it should be remembered, are not the sole prerogative of democracies; they can also be made by countries which are less than perfectly democratic out of economic self-interest. Pakistan, at present, is making unilateral concessions on many disputed issues with India. Our findings, however, veer towards the more economic or capitalist versions of the liberal peace hypothesis. Economic progress and poverty reduction combined with greater openness to international trade in general are more significant drivers of peace between nations like India and Pakistan, rather than the *independent* contribution of a common democratic polity. There may be the indirect pacific effects of greater globalization as emphasized by Dorussen & Ward (2009). In many ways, our results for an individual dyad echo Polcahek's (1997) work across several dyads, where it is argued that democracies cooperate not because they have common political systems, but because their economies are intricately and intensively interdependent. As pointed by Hegre (2000), it is at these higher stages of economic development that the contribution of common democratic values to peace becomes more salient. Meaningful democracy cannot truly function where poverty is acute and endemic, even in ostensible democracies such as India. In the final analysis, it may be that true democracy itself is an endogenous by-product of increased general prosperity, as suggested nearly half a century ago by Lipset (1960).

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