

**The Prospects for Economic Development  
in the Middle East after the Peace**

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## ABSTRACT

### **The Prospects for Economic Development in the Middle East after the Peace**

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The paper provides a discussion of the many possible economic benefits of peace in the Middle East, together with some possible costs. The discussion is mostly qualitative, but quantitative estimates are included for one aspect of the problem: the effects of peace on international trade and the resulting effects on economic growth. The general discussion identifies two major benefits from peace: first, the “peace dividend” that may appear if military expenditures are diverted to other uses; and, second, the gains in economic efficiency that will result from increased international trade and investment as well as the liberalization of domestic markets that should become possible after a peace. In the quantitative analysis a “gravity equation” relating international trade to country incomes and the distances between them is first estimated, then used to predict the trade of the countries of the Middle East after the peace. The predicted increases in trade are then related to country growth rates using estimates from the literature of relationships between growth and investment and between investment and trade. The paper concludes that the economic benefits of peace will be substantial, although the quantitative analysis (applied to only Egypt, Israel, Jordan, and Syria because of data limitations) shows a substantial improvement only for Egypt.

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## **The Prospects for Economic Development in the Middle East after the Peace<sup>\*</sup>**

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### **I. Introduction**

The peace process in the Middle East has made difficult progress over the last few years, but in spite of the recent assassination of Prime Minister Yitzhak Rabin, it appears still to be moving forward and to have sufficient momentum that some form of peace will eventually be established. It is therefore not too soon to be considering the implications of that peace, even though it is still uncertain what its parameters will turn out to be. In this paper I examine the possible implications of peace in the Middle East for the economic development of the countries in the region. Because my own area of expertise is international trade, I will focus in most of my quantitative analysis on the effects of peace on international trade, and how trade in turn might affect development. However I will also examine more briefly a number of other possible implications of peace for the economies of the region and what these may be expected to imply for its development. Needless to say, the most important implication of peace for the region will not be economic, but will be in terms of the lives that will be saved when hostilities cease. But the economic benefits (and also some costs) of peace are nonetheless worth examining so that the

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countries themselves, as well as the many other countries who share an interest in them, can plan for the future and take optimal advantage of the peace when it comes.

My focus here will be on five countries — Egypt, Israel, Jordan, Lebanon, and Syria — plus the Occupied Territories of the West Bank and Gaza. Data are of course very scarce for the Occupied Territories, as well as for Lebanon due to the long period of disruption there. As a result, my quantitative analysis will be confined to the other four countries. For simplicity of exposition I will refer to the West Bank and Gaza collectively as a sixth country with the name Territories, although it is as yet unclear what their ultimate formal status will be.

I will begin in Section II with a brief look at the background for the study, reporting some broad aggregates that will put the problem into perspective. In Sections III and IV, then, I will discuss more extensively, though in largely qualitative terms, both the benefits and the costs, respectively, that may result from the peace. Since I believe that one of the more important and likely benefits of peace will be the opportunity for greater trade among the countries of the region, as well as greater trade with countries elsewhere, I will turn in Section V to a quantitative analysis of how much their trade may be expected to expand. This analysis will be based on the estimation of a “gravity model” of bilateral trade that will be estimated for a large group of countries other than those under investigation here, and that then will be applied to the focus countries as a way of determining what their “normal” patterns and levels of trade may be. Compared to their actual trade, this will provide an estimate of how much their trade may eventually expand once the barriers due to the conflict are removed.

Trade itself is only a means to the end of increasing the welfare of the people in the region, and I will turn next to an estimate of how much this estimated growth in trade may matter for the

ultimate ability of the countries to develop. There exists a rather large literature on the “correlates” of growth across countries, including the relationship between trade and growth, and I will draw upon this literature to translate the increases in trade from Section V into estimates of potential growth in Section VI.

All of the above implicitly assumes that the peace process will permit the countries of the region to become more “normal” — that is, more like countries of their approximate size elsewhere in the world — as a result of the peace. In fact, such a return to normalcy is not assured, unless the countries themselves and their friends abroad permit it to happen. This will require that the countries successfully pass through a transition process that will undoubtedly be costly and painful for many of those involved, a process that will need to be facilitated with help from other countries who can afford to lend a hand. In addition, the countries of the region will need to perform some radical changes in their own internal policies and their policies *vis a vis* one another, removing the many impediments to normal economic transactions that they currently maintain. Thus Section VII will discuss some of these other changes and conditions that will be needed for the rather optimistic scenarios of greater trade and growth to be realized.

## II. Background

The focus countries of the Middle East differ considerably in size and income, although all may still best be classed as developing countries, with per capita incomes in the mid-range of those of the entire developing world. Table 1 reports recent values of selected economic indicators for the six focus countries. Egypt is by far the largest of the countries in both population and land area. The Territories are the smallest in these terms, although not a great deal smaller than Lebanon. In contrast, Israel is by far the richest of the countries and Egypt, by a small margin, the poorest. The Territories, although administered by Israel for more than a quarter of a century, are almost as poor as Egypt in terms of per capita GDP.

In economic size the countries range from the largest, Egypt, with an estimated real GDP in 1994 of \$152 billion, roughly the same size as Austria, to the smallest, the Territories, with a real GDP only about one twenty-fifth as large, about \$6 billion, comparable to Namibia and smaller than Luxembourg. Of course the Territories have never yet existed as a separate country, and with their small size and divided land area one might question whether they ever will. But even among the other countries of the group there are two, Jordan and Lebanon, that are not much more than one tenth the size of Egypt in terms of GDP. Clearly this is an economically diverse group.

Being diverse need not be a disadvantage, however, for upon differences can be built opportunities to trade. But these countries trade unusually little, especially among themselves. The trade and GDP numbers in Table 1 are not entirely comparable, and we will meet more accurate comparisons later in the paper. But one can see already that only Israel exports more than one tenth of its GDP, and virtually none of that goes to any of its geographic neighbors in

the group. The others export as little as two percent of GDP (Egypt) or five percent (Syria), in spite of their relatively small size. All of the countries import somewhat more than they export, sometimes substantially more, the difference being financed by sources as diverse as aid, borrowing, and remittances from workers abroad. But even the level of imports is small in these countries. It is this low level of trade that I will focus on later in the paper as a principal indicator of the potential gains from peace.

For the analysis below I have sought to gather data on the bilateral patterns of trade among these countries. My source, a CD-ROM from Statistics Canada, included detailed bilateral trade for many countries in 1990, but there were also some omissions. Not surprisingly, the Territories were not included in the data. Nor was Lebanon, presumably because it was still in a state of civil war in 1990. Table 2 therefore reports the bilateral exports and imports only among the remaining four countries, Egypt, Israel, Jordan, and Syria. Empty cells represent omissions from the data, but these trade flows, which are all between Israel and either Jordan or Syria, were plausibly negligible.

To evaluate these numbers properly will require a more formal analysis later in the paper, but already it is clear that these trade flows are small. The largest is from Egypt to Israel, with exports of \$163 million, but all but \$3.4 million of this is oil, and even that trade only exists because of the Camp David Accord. Otherwise the trade of Israel with its Arab neighbors is essentially zero, as of course is to be expected due to the hostilities. Even the trade among the Arab countries themselves is on the small side, and this presumably cannot be explained by mutual animosity. If trade had to take place over land, one might attribute this small intra-Arab trade to the fact that their enemy, Israel, lies in the way, but there are many other ways to

transport goods in the modern world. A more plausible explanation for their small trade is the often stated claim that the Arab countries all share the same comparative advantages, in raw materials and labor-intensive manufactures. But even here there are ample opportunities for specialization within these categories. It seems likely, then, that at least a part of the reason for the Arab countries' low mutual trade has been the conflict itself, which has added to the uncertainty and danger of economic transactions of all sorts.

Returning to Table 1, we see one indication of the importance of the conflict in the levels of military expenditures in these countries as percent of GDP. The figures for all but Lebanon come from Diwan and Papandreou (1993), and are considerably higher than some that were reported in the source for most of the other data in Table 1, the CIA Factbook 1995. But if these numbers are to be believed, they say that the countries of the Middle East spend from one eighth to one fifth of their incomes on defense, which is substantially more than most countries in the world.

How they could afford to do so is indicated, though only partly, in the final column of Table 1, which reports estimates of their external debt for dates around 1994-95. Clearly they have borrowed to some extent to finance their military expenditures. However, these levels of debt, while comparable to many other LDCs in proportion to GDP, are not as high as one might expect for countries that have been financing unusually large levels of defense spending for several decades. Instead, the countries also had help from their friends in financing the conflict. Israel received help from both government and private sources in the United States, while Jordan and Syria got help from other oil-rich Arab states as long as oil itself was doing well. Egypt got help from both sides, the Arabs before the Camp David Accord and the United States after. An

important consideration in evaluating the gains from the peace is whether all of this external assistance will continue to be forthcoming when the countries no longer appear to be under military threat.

### III. Possible Economic Benefits of Peace

The literature on the economic effects of peace, both world-wide and in the Middle East, is extensive. The general literature has often focused on the effects of disarmament and of the end of the cold war.<sup>1</sup> As the promise of peace in the Middle East began to glimmer, a number of studies were undertaken to examine what it would all mean. For example, Ben-Shahar (1989) looked backward and estimated that had peace been attained in the early 1980's, this would have led over the next ten years to growth in GNP that would have been 24% higher in Egypt, Jordan, Lebanon, and Syria and 22% higher in Israel. Perhaps the definitive work on the topic so far has been an excellent conference volume edited by Fischer, Rodrik, and Tuma (1993) that explored the topic from multiple perspectives as of the end of 1991. That volume included contributions from specialists in each of the region's economies as well as from commentators from outside the region. The discussion in this and the next section will draw heavily upon the contributions to that volume.

In this section, I will explore the possible economic benefits of peace, and in the next section the possible costs. As always in benefit-cost analysis, the two are not always distinct, both because benefits may be seen as negative costs and *vice versa*, and because disagreements about some issues identify them as benefits by some analysts and as costs by others. Nonetheless, the distinction provides a useful framework for organizing our thoughts.

Two main benefits are usually identified. One, routinely called the Peace Dividend, refers to the resources that are freed up by peace, and the consequent potential to convert labor and other resources from military to peaceful purposes. The second large benefit includes variously the increased international trade, increased international investment, and increased market

efficiency that become possible when both the physical dangers of armed conflict and the impediments of animosity that accompany them are removed and permit economic markets and institutions to function more smoothly. Since all of these are really different aspects of economic efficiency, I will combine them under the single heading Peace Efficiencies, but I will necessarily have to look at them separately since they differ considerably in the economic mechanisms involved and in the extent to which we can quantify their effects. Finally, I will close the section with a short list of other considerations that have been raised occasionally and that also may influence the benefits that the Middle East region will derive from the transition to peace.

### **The Peace Dividend**

As already reported in Table 1, the focus countries of the Middle East spend anywhere from 12% (in Egypt) to 21% (in Israel) of their GDPs on military expenditures.<sup>2</sup> This contrasts with an average military expenditure among all developing countries of 5% of GDP.<sup>3</sup> At a maximum these figures suggest that resources equal to between 7% and 16% of GDP could be converted from military to other purposes in the event of peace. To the extent that peace itself is a costless substitute for the sense of security offered by current military expenditures, then even if this expenditure were converted entirely to consumption, it could provide a permanent increase in real per capita consumption of at least these percentages as well. Better still, if the peace dividend were instead used for investment, then it would lead to increased economic growth and an increased rate of increase in per capita consumption over time. For example, Fischer et al. (1993, p. 3) suggest the simple calculation that if an additional 5% of GDP were invested and the incremental capital output ratio (ICOR) were 3, then the rate of growth of GDP would increase

by  $0.05/3=1.67\%$ . At this rate, investment of peace dividends of 7% to 16% of GDP could increase growth by from 2.33% to 5.33%. These would be quite substantial increases in growth.

Of course, these are the upper limits to what may in fact occur. New capital may well be considerably less productive than this assumed value of the ICOR would suggest.<sup>4</sup> Military expenditure itself may well have included an investment component that contributed more generally to GDP. Also, it is unlikely that all of the released resources will be used for investment. Finally, Waterbury (1993, p. 256) has noted that reduction of at least some military expenditures does not release resources because military hardware has been provided on concessional terms and frequently never paid for.

But perhaps most importantly, it is not really believable that these countries of the Middle East will reduce their military expenditures by very much any time soon. Waterbury (1993, p. 257) also points out that each of these countries also faces other threats than just the Arab-Israeli conflict, and these other threats will prevent them from undertaking large reductions in military expenditures. Also, even if the Arab-Israeli conflict itself is settled, one can hardly expect that decades of hostility will evaporate instantly and leave the combatants feeling so secure that they will completely abandon much of their defense. It will surely require years, if not decades, of uninterrupted peace before they will begin significantly to cut back their military expenditures and leave themselves vulnerable to a resumption of the hostilities.

Therefore, while one can hope that a meaningful peace dividend will in fact be realized, it would be unwise to count on it as the major economic benefit of the peace. Indeed, as will be noted below, the peace will more likely require a difficult process of transition in order to reap its other benefits, even with unchanged military expenditure, as it will be necessary for some

industries to expand and for others to contract. This will in turn require a degree of austerity during a perhaps prolonged transition, much as has been needed elsewhere in countries making transitions from central planning to markets. As Diwan and Papandreou (1993, p. 250) have pointed out, unrealistic expectations of a large peace dividend could be counterproductive if they make it more difficult to convince the public of the need for such austerity. I conclude that the prospect of a large peace dividend should be heavily discounted.

### **Peace Efficiencies**

Countries at war have always found it necessary to bypass markets in their need to direct the energies of their economies narrowly toward self defense or victory and to reduce their vulnerability to external interruptions of necessary supplies. A degree of state control is probably necessary when the objectives of a society are narrowly defined in terms of military success. However, state control is not at all effective in pursuing the much more diffused objectives of individual economic welfare, as the experience of the last half century with central planning has amply demonstrated. The greatest economic benefits of peace in the Middle East will therefore come from the increased ability of the countries to reconstruct their economies to take advantage of the efficiencies that can only be found in decentralized markets. These efficiencies include all manner of opportunities within the domestic economies of the countries to turn economic decision making over to markets. And they include as well the advantages of participation in the world market economy through international trade and investment. I will discuss each of these items in turn.

### *Increased Efficiency Through International Trade*

International traders will put up with a great deal of inconvenience to move their wares, but risks to life and limb require a considerable premium. Therefore it is not surprising that countries in conflict trade less than countries at peace. As noted above, it is not only that the countries may refuse to trade with those they consider to be their enemies, although this by itself may be an important source of economic loss in the Middle East because of the large amounts that Israel and its neighbors have to offer each other. It is also true that countries on the same side of the conflict find their trade with each other and with the world reduced below what it would otherwise be, due to a variety of causes. The danger of trade in a potential combat zone is only one of these causes. In addition, there is a strong tendency for governments in conflict to intervene heavily in their economies and to restrict all manner of economic transactions that they do not see as helping their defense.

All of this imposes considerable cost on the economies involved, the flip side of which constitutes one of the greatest benefits that may be expected from peace. All of these countries are small, as noted above, and small countries bear a considerable cost if they try to produce everything that they need for themselves. Technologies in almost all industries display at least some economies of scale at low outputs, and there are few industries where the minimum efficient size of the plant will not satisfy more than the domestic demand of a very small country. Without trade, such countries must make do with inferior and more costly techniques of production, and that limits their standard of living to that of earlier periods in history when such techniques may have been the best available.

Even somewhat larger countries — ones that might accommodate in their market's minimally efficient plants in more industries — will not accommodate more than a few plants in any one of them. They will therefore be subject to the additional losses of imperfect competition. That is, if only a few plants are viable in an industry, then only one or a few firms will operate them, and those firms will easily manage to raise prices well above costs, whether those costs are low or high, and so distort consumer choice. The cost here is not only in terms of income distribution, in which the few profit at the expense of the many. There is also a loss of efficiency, as resources are misallocated away from activities where they could be most productive in enhancing human welfare. This loss cannot be corrected by redistributing income, even if that were possible, because the income simply is not there.

Even if all industries could be operated efficiently at scales small enough to approximate perfect competition, an autarkic economy would also deprive itself of the benefits of specialization. Even at its best, a single country cannot do all things equally well. A country that is abundant in labor and raw materials will be able to produce labor- and material-intensive goods relatively more cheaply than it can produce, say, capital-intensive manufactures. Therefore even if it could avoid the pitfalls of small scale and imperfect competition in such manufactures, it would still do better to specialize in sectors where it has a comparative cost advantage and export those products in exchange for imports that it could not produce as cheaply.

All I have described in the last three paragraphs, of course, are just the usual arguments for the gains from trade. The last is the classic doctrine of comparative advantage, while the first two are also old truths that have been given new life in recent writings on trade policy in the last

decade or so. Recent writings also point out yet another gain from trade, and hence a benefit from peace if it permits expanded trade. That is, by trading, countries give their citizens access to a much greater variety of goods than they could have produced within their countries, and this variety in itself enhances consumer welfare in ways that our simple measures of national income cannot take into account. While some may question the value of having multiple varieties of a single product on the shelves of stores (or multiple finely differentiated sizes and designs of intermediate inputs available to producers), the testimony of many who have lived both with abundance and with scarcity will surely attest to the benefits of such variety.

Finally, there is good reason to believe that trade does not just increase the size and attractiveness of the pie that an economy can serve up to its people. It also allows that pie to expand at a larger rate over time than it could otherwise. The reason for this may just be that some of the gains already mentioned can be used to invest in growth for the future, as Baldwin (1992) has suggested in explaining a minimal mechanism for trade to affect growth. Or it may be that trade enhances growth through an assortment of other mechanisms that remain at this point mostly speculative: (1) trade gives a country access to capital goods embodying superior technologies, as described by Mazumdar (1995); (2) trade extends economies of scale to a dynamic context in which larger industries engender more rapid technological progress, one of the mechanisms explored in Grossman and Helpman (1991); (3) trade enhances competition beyond a nation's boundaries and its national constraints, and this forces competitors to innovate continually in order to keep up with their counterparts abroad; and so on. The stories we can tell of why trade may stimulate growth are endless, and so far unconfirmed. But the fact remains that countries that trade more *do* grow faster, whatever the reason, and we know this not only from

observation of the successes of the newly industrialized countries, such as the Four Tigers of East Asia, but also from a large empirical literature that has sought to identify the correlates of growth across countries.<sup>5</sup>

In any case, there are so many channels through which countries may gain from trade, that one need not believe in all of them in order to conclude that trading is far superior to not trading. And the countries of the Middle East have traded far less than they might have, had the conflict in their midst not interfered. At the head of the list, then, of the economic benefits of peace must stand the opportunity to restore to normal the trading relations of these countries among themselves and with the rest of the world.

#### *Increased Efficiency Through International Investment*

A second and increasingly important mechanism for countries to interact economically is international investment. This includes both portfolio capital movements and also foreign direct investment. The latter, to the extent that it is financed within the host country, may not involve much movement of capital in the conventional sense, but it can be even more important for the health of the host-country economy than movements of financial capital. Portfolio capital movements may be somewhat reduced by military conflict, especially between enemy countries, but since financial capital is more or less homogenous, the overall cost to the countries from diverting such capital flows may not be large. The main deterrent, for lending by third parties to either side in a military conflict, is the possibility that they will be defeated so completely that they will not be able to honor their debts. In the Middle East this does not seem to have been

much of a concern, and the countries seem to have been able to borrow fairly readily on international capital markets. Witness their levels of external debt reported in Table 1.

The more serious concern is interruptions of foreign direct investment (FDI) due to war. Regardless of where such investments are financed, the establishment of local subsidiaries in the Middle East countries by multinational corporations has to have been discouraged by the ongoing conflict and animosities. Indeed, one would expect FDI to be even more sensitive to the risks of military interference than trade, since the worst that can befall a trader is the loss of a few shipments, while direct investors risk their entire investments.

Furthermore, FDI provides benefits that extend well beyond what can be generated by trade or by movements of financial capital. FDI typically brings with it at least some aspects of the technology of the investing firm, which then becomes available to the host country. Similarly, multinational investors will often provide training to local employees, enhancing their human capital as well. Both of these effects work much more directly than international trade to increase rates of economic growth in host countries.

An attempt to quantify the reduction in FDI that may have occurred in the Middle East due to the hostilities, and to translate this reduction into the increase in FDI and the resulting effects on economic growth that might result from peace, is beyond the scope of this paper. That there has been and will be such effects in some of the countries, however, cannot be doubted. In the case of Israel, Halevi (1993, p.97) notes that “the net inflows of private investment never reached large numbers” and he attributes this both to the complexity of the Israeli bureaucracy and to the risks of war. In addition he notes that investment in Israel was discouraged by the Arab secondary boycott, which threatened foreign firms that invested in Israel. Even more severely,

Kleiman (1993, p. 315) notes that the uncertain political status of the Occupied Territories has prevented almost all FDI from Israel and has inhibited investment from other sources, including domestic investment. Writers dealing with the other Arab countries in the region also mention the importance of FDI in discussing the effects of the peace, though less specifically.

#### *Other Sources of Increased Efficiency*

Not usually included in data on trade flows — and therefore I will mention it here — is trade in services. In the case of the countries of the Middle East, a most important category of trade in services is the revenue that they derive from tourism. Most of these countries have natural advantages as tourist destinations, including not only their climates and the access of most of them to the sea, but also their rich histories embodied in a multitude of ancient sites. In addition, Israel and the Territories include locations of sacred significance for three of the world's great religions, making them a religious destination as well. However, if international trade and investment are discouraged by the uncertainties of war, tourism is surely even more so, and there can be no doubt that all of the countries' revenues from tourism have been depressed by the hostilities. One of the most visible effects of peace will therefore be the increased tourist traffic in these countries and the resulting revenues that can in turn be used for all of the other benefits attributed above to international trade.

A second gain in efficiency may be expected within the domestic economies of many of these countries. Governments of countries in conflict routinely take control of many sectors of their economies that are deemed critical for their defense. With peace one can hope that many of these state sectors will be privatized, yielding the same sorts of benefits in economic efficiency

that are being experienced in Eastern Europe. Diwan and Papandreu (1993, p. 244) identify utilities, transportation, energy, communications, and heavy industry as good candidates for divestment in the region. This suggests a considerable scope for improved economic efficiency, either from more efficient private firms in these industries or, in some cases, from replacement of the domestic state-owned production with imports.

In other areas the national governments will necessarily continue to be involved, but improvements in efficiency may be obtained from more complete and effective international cooperation. The most important area for cooperation involves water resources, which are in short supply in all of the Middle East countries. Here it is critical that neighboring countries cooperate to manage and share these scarce supplies, yet with the countries at war and with Israel in the middle of the Arab countries geographically, this has been impossible. This will not be an easy problem to solve, but it will at least become possible to attempt to solve it once the countries are at peace.

Finally, also under the heading of economic efficiency should be mentioned the migration of labor. This is one area where there has, at various times during the years of conflict, been considerable activity already. For many years, for example, a large number of workers from the Arab countries of the region worked in the Gulf States. Abu-Jabarah (1993) for example notes that 35% of the work force of Jordan was employed outside of it, and Egypt also has provided many workers to the other oil-producing states. This flow was reduced at the time of the Gulf War, and it has not fully recovered. There were concerns in the Gulf States of possible political instability, which they attempted to avoid by bringing in guest workers from Asia instead.<sup>6</sup> These concerns would presumably be lessened somewhat with a move to peace.

Similarly, many workers in the Territories have worked in Israel. Awartani (1993) says that 35%-40% of the labor force in the Territories has been employed in Israel, yet even this substantial labor flow is less than might be possible, since there continues to exist a substantial wage differential between Israel and the Territories.

However, as these two examples suggest, there has been very little movement of labor across the frontier of the Middle East conflict, that is, between Israel and the Occupied Territories on the one hand and the Arab states on the other. In view of the considerable difference in wage rates between Israel and the other countries, one might expect peace to cause a substantial flow of labor from all of the Arab states into Israel, if that migration would be permitted. Of course one does not normally find borders to be totally open to migration even among countries at peace, so this may not be a significant factor, in spite to the economic gains that such movement of labor could create.

This completes my list of easily identified sources of increased efficiency that might result from the peace. But even this list is not complete. Citing a host of government policies that were not conducive to efficiency and growth, plus the lack of pressure to liberalize their economic structures that resulted both from attention to the conflict and from reliance on external aid, Diwan and Papandreou (1993, p. 232) comment: "Observers generally agree that, although difficult to quantify, the most important economic impact on the Middle East of the confrontation years has been a marked decline of economic efficiency."

#### **IV. Possible Economic Costs of Peace**

There will be economic costs, as well as benefits, that arise from peace. Most important, I suspect, will be the same sorts of adjustment costs that any economy experiences when it undergoes a substantial structural change. All of the benefits discussed in the preceding section will be realized only if corresponding adjustment costs are borne as well. Even the peace dividend, if it turns out to be substantial, will require whole sectors of each economy that were previously supplying the conflict to shut down, and the resources that were employed there will have to find alternative employment. This includes, of course, the military personnel themselves, although in some cases the military have continued their civilian employment during the conflict, combining it with part-time military service.<sup>7</sup>

Expansion of international trade, too, while it yields great benefits, also entails a cost. As in any exercise in trade liberalization, removal of the barriers to trade that have existed due to the conflict will require that resources move from import-competing industries to export sectors. And while this sounds simple enough to accomplish in theory, and the gains from doing so are apparent, it seldom happens without severe distress for some of the individuals and firms involved. Indeed, while the gains from trade may be shared more or less equally across the economy, the costs of adjustment are certainly not, and there are always segments of society that suffer a permanent loss from freer trade. That will be true in the Middle East, just as it has been true in many other countries of the world that have made the transition to more liberal trade, and the costs (as well as benefits) will be all that much larger here due to the size of the barriers that have implicitly kept Middle East trade to such low levels.

A second cost due to peace has been suggested, but there is far from a consensus that it will occur. That is the possible loss in foreign aid that the countries will receive. To the extent that foreign aid has been forthcoming, from the United States and Europe to Israel and from the richer to the poorer Arab States, only in response to the conflict, it is possible that it will no longer be viewed as necessary after the peace. That is a view that has been articulated, for example, by Hilan (1993, p. 64). On the other hand, others have argued that some reduction of aid would occur, with or without the peace, due to the end of the cold war, and also that the benefits of aid are questionable since it may merely postpone needed reform.<sup>8</sup> With yet another view, Halevi (1993, p. 96) has even argued for Israel that "... such progress [toward peace] will do much to loosen purse strings in the United States and Europe." It seems very difficult to know what will happen to foreign aid.

There are several other assorted economic costs that have been occasionally suggested. For Israel it is sometimes claimed that peace will deprive it of the benefits that it has derived from exploiting the Territories, although Halevi (1993, p. 104) dismisses any such benefit as negligible, even before the *intifada*. The reverse of this view, in fact, holds that it is the Territories that have benefitted most from economic integration with Israel, and that this benefit will be foregone under some possible scenarios for the peace, if it leads the Territories and/or Israel to erect barriers against their currently considerable trade with each other.<sup>9</sup> Finally, El-Naggar and El-Erian (1993, p. 213) have noted a possible down side to the reductions in military expenditures: the loss "of possible beneficial spillover effects associated with such expenditures."

None of these costs should be ignored, especially the adjustment costs that can be substantial for affected sectors and individuals. Ideally, any peace should be accompanied by

policies to deal with these costs, to the extent possible without interfering with the adjustments themselves. But no one has suggested that any of these costs could be so great as to reverse the presumption that peace will be, on the whole, economically beneficial. Added to the even more important non-economic benefits of peace, the case for pursuing the peace process is only enhanced. Nonetheless, it remains to attempt a quantitative assessment of what the benefits of peace may be, a task to which I will now turn in a limited way.

## **V. Analysis of the Opportunity for Increased Trade**

In terms of most traditional theoretical models of international trade, the amount that a country trades depends on the various determinants of its comparative advantage, such as its relative factor endowments, technology, and access to natural resources, together with the extent of any barriers to trade such as transportation costs, tariffs, and quotas. In principle, if one has data on all of these determinants of trade,<sup>10</sup> one can build an explicit model of trade and solve it for the change in trade that would occur if some of them were changed. For example, a number of computable general equilibrium (CGE) models of trade have been constructed over the years and used to evaluate the effects of important changes in trade policy, such as the tariff cuts of the Tokyo and Uruguay Rounds of trade negotiation.<sup>11</sup> Therefore, if we had information on the quantitative size of the barriers that the conflict in the Middle East implicitly imposes on international trade, due to risk, uncertainty, and ideological preferences, we might be able to use the CGE methodology to ascertain how much trade would expand in the event that peace in the region were established.

However, we do not have such information. Indeed, it is always difficult to measure the size of nontariff barriers (NTBs) to trade in a form that would be comparable to the size of tariffs, and war provides perhaps the ultimate NTB.<sup>12</sup> Therefore if we wish to estimate the amount by which trade might expand due to peace, we must take another approach. Fortunately, an alternative approach exists that is quite straightforward.

In this section I will use data from countries other than the focus countries of the Middle East to estimate a "gravity equation" relating bilateral trade to the incomes of the trading countries and to the distance between them. Then I will use that equation to predict the trade

flows that would be observed for the focus countries if their barriers to trade were only the average barriers of countries around the world. Comparing these predicted values to the countries' actual trade flows, this will give us an estimate of the expansion of trade that might result from the peace.

### **The Gravity Equation**

The gravity equation has been used since the early 1960s as a convenient empirical description of bilateral trade flows.<sup>13</sup> Originally it was used without any theoretical economic justification, but just on the basis of *a priori* plausibility, motivated by analogy to the law of gravity in physics. In a simple form, the equation says that trade between two countries is proportional to the product of their national incomes and inversely proportional to the distance

$$T_{ij} = A \frac{Y_i Y_j}{D_{ij}}$$

between them:

where  $T_{ij}$  is the value of exports from country  $i$  to country  $j$ , the  $Y$ 's are their respective national incomes,  $D_{ij}$  is a measure of the distance between them, and  $A$  is a constant of proportionality.

After its early use as a strictly empirical relationship, international trade theorists did turn their attention to deriving the gravity equation from various theoretical models, and it is now accepted that the gravity equation represents a central tendency of bilateral trade flows in a wide variety of models.<sup>14</sup> In any case, and regardless of its theoretical justification, the gravity equation has a long history of fitting the data on international trade extremely well.<sup>15</sup>

I will use the gravity equation here to predict what trade of the Middle East countries “ought to” have been had they been at peace. This, of course, is not a direct implication of the gravity equation, no matter how it is derived. There are many possible reasons why the trade of a country or group of countries might differ from the gravity-equation relationship fitted to other countries, including differences in any relevant economic variable other than the incomes and distance that appear in the equation. To attribute all departures from the equation as being due to the military conflict is to assume that no other such differences exist and are important. For example, were it the case that the countries of the Middle East just happened to be unusually well endowed with everything they needed to be self sufficient, then if they traded less than other countries it could be due to that, rather than to their state of military preparedness. Peace would then fail to bring the benefits of increased trade that the analysis here will predict. However, I know of nothing in the reality of the Middle East economies to suggest that this or any other explanation for them not to trade is important. Therefore I feel somewhat confident that the potential for war really is the most distinctive difference between these countries and the rest of the world, and that therefore any major differences that we observe in their behavior compared to the world are attributable to the conflict.

Of course it does not follow that peace alone will be enough to restore the countries to normal behavior, since peace could be accompanied by other policies that would resist such change. I will say more about this caveat below in Section VII.

## Regression Results

Using data on 1990 bilateral trade from Statistics Canada and real levels of GDP for the same year from the Penn World Tables Mark 5.6, I selected 85 countries from which to estimate the gravity equation. These included all countries that appeared in both of these sources, other than the focus countries, that had GDP at least half that of Jordan.<sup>16</sup> Distance (great circle) between each pair of countries was computed from the longitudes and latitudes of the countries' capitols.

Allowing non-unitary exponents on each component of the fraction in equation (1) as well as a multiplicative disturbance term, and taking the logarithm of both sides, the estimating form of the gravity equation becomes:

$$t_{ij} = \alpha + \beta_x y_i + \beta_m y_j + \beta_d d_{ij} + u_{ij}$$

where lower case letters are the logarithms of the variables in (1),  $\alpha$  is the constant in the regression,  $\beta_x, \beta_m, \beta_d$  the coefficients of exporting-country income, importing-country income, and distance respectively, and  $u_{ij}$  is a disturbance term. The estimated equation was, with standard errors in parentheses,

$$t_{ij} = -19.274 + 0.965 y_i + 1.083 y_j - 1.084 d_{ij} \\ (0.605) (0.019) (0.019) (0.033)$$

As is typically the case with gravity equations of this sort, the fit was quite good for a cross-section regression with so few explanatory variables — the adjusted  $R^2$  was 0.57. The elasticities of bilateral trade with respect to incomes were both fairly close to the unity of equation (1),

although the elasticity with respect to importing-country income was statistically significantly different from unity as well as from the elasticity on exporting-country income.

### **Estimates of Trade Potential**

Table 3 reports the changes in bilateral trade among the focus countries predicted by equation (3). All of the predicted changes are positive. The predicted increases in bilateral trade flows among the focus countries range from \$11 million for Egypt's exports to Israel, to \$170 million for Israel's exports to Syria. As percentages of current trade, these range from only a 6.7% increase in Egypt's exports to Israel, to an almost eight thousand percent increase in Israel's exports to Egypt. Of course, I have no trade data at all for the trade flows between Israel and the Arab countries other than Egypt. I assume such trade to be negligible, so that any increase is an undefined percentage.

Table 4, in the columns labeled "Focus countries only," reports the sums of the predicted changes in trade among focus countries and shows the implied increases in total trade if all other trade flows were to remain constant. These correspond to percentage increases in total exports of from 3.7% for Israel up to 14.3% for Jordan, with similar percentages for total imports. I will use these percentage increases in exports for one calculation of the possible effects of peace on growth in the next section.

It might be argued that the potential for war has affected trade not only among the focus countries, but also between them and the rest of the world. The effects could go either way, however. On the one hand, the uncertainties of trading with a country in conflict might have reduced trade below what it would otherwise have been. Alternatively, the inability of the focus

countries to trade easily with each other might have diverted their trade to the rest of the world. Also, it may be that the focus countries were compelled to trade more with the rest of the world in order to obtain supplies needed for the conflict and (in the case of exports) to pay for those supplies. Therefore it is desirable to examine what the focus countries trade with the rest of the world might have been had they displayed the “normal” pattern of the gravity equation (3).

Unfortunately, I do not have 1990 GDP data for some countries of the world, including especially most of the non-focus Arab countries with whom the focus Arab countries do a significant portion of their trade. I am therefore only able to use equation (3) to predict trade with the “included” countries, those for which I do have 1990 GDP data. Summing the predicted changes in trade with all of these “included” countries and adding it to the totals for trade with the world in Table 2, I have calculated the predicted changes in trade shown in the columns headed “All included countries” in Table 4. Also reported are the old and new values for total trade that these changes imply, and the corresponding percentage changes.

Clearly, the story told by these numbers is quite a bit different from the calculations for trade among the focus countries alone. First of all, the exports (and imports) of Israel are predicted to fall dramatically — by over seventy percent. The exports of the Arab focus countries go up, by anywhere from 2.5% for Jordan to 133% for Egypt. Imports, on the other hand, of all of the countries except Syria are predicted to fall.

What is going on here, and can we reasonably take these predicted changes in trade as representing the effects of peace? That depends on whether one believes that the main distinguishing feature of each of these economies is the conflict itself, rather than some other special characteristic that affects trade and that would continue to operate after the peace.

For example, all four countries are shown as reducing their imports *vis a vis* the world in Table 4. All this really says is that the focus countries currently import considerably more than other countries in the world of comparable sizes and distances from world markets. This could easily be due to the access to foreign funding that the countries enjoy in part because of the interests of other countries in the outcome of the military conflict. If peace reduces this availability of foreign funding, then declines in imports such as these may in fact have to occur. If on the other hand these countries enjoy a special relationship with other countries that will continue to attract greater inflows of funds after the peace, then these changes in imports would not have to materialize. In any case, I will be using the changes in exports, not imports, for my calculations of growth effects below.

Regarding exports, each country seems to require its own interpretation. Table 4 shows total exports of Egypt more than doubling due to the peace. This reflects the fact that Egypt currently exports far less than other comparable countries, and this is almost certainly due to the substantial barriers to trade in Egypt that have been noted. If these barriers remain after the peace, then there would be no reason to expect these predicted increases in exports to materialize. On the other hand, it may well be that the trade barriers and other impediments to market transactions that exist in Egypt are themselves a byproduct of the conflict, which has caused Egypt to remain a very centralized economy. If, as many hope, the move to peace will be accompanied by a substantial liberalization of economic structure and policies in Egypt, then this doubling of exports would not be unrealistic at all. In the calculations below, therefore, one should think of the predictions for Egypt based on these numbers as representing not just peace, but peace together with such liberalization.

Israel is shown in Table 4 as reducing exports to the included countries (which do include almost all of Israel's trade) by over 70%. That is, Israel trades much more with the world than the gravity equation records as "normal." To the extent that this unusually large amount of trade is due to conflict, then this calculation predicts that it will disappear with peace. However it is hard to see how one should attribute very much of Israel's unusual trade volume to the effects of conflict. Israel has long-standing close ties, both political and economic, with the countries of Europe and the United States, and these ties undoubtedly account for their large propensity to trade. Indeed, Israel has enjoyed free trade in industrial products with the European Community since 1975, and free trade in all products with the United States since 1985. Therefore, while it may be that some of this trade is generated by the special needs of Israel's defense-oriented economy, it seems unlikely that much of it will disappear with peace. Therefore I do not take this particular prediction very seriously

Jordan and Syria both show their exports to the world increasing in Table 4, although for Jordan the increase is actually smaller than the increase predicted for exports to the focus countries alone. This suggests that some of Jordan's trade may have been diverted by conflict, rather than eliminated entirely, and therefore that a part of the increases in exports to the focus countries will simply be redirected from other markets further away. In Syria, on the other hand, trade has been substantially below the norm reflected in the gravity equation, and like Egypt though to a lesser degree, this may reflect substantial barriers to trade that one can hope will be removed if peace is accompanied by liberalization.

The overall message of Table 4, however, has to be one of considerable uncertainty. The gravity-equation methodology, especially as used here, is very crude and has not permitted a very

refined assessment of these countries' potentials for trade.<sup>1</sup> There seems to be fairly strong indication that they will trade more with each other, in the event of peace, and the sizes of these increases are quite large compared to their existing trade along these routes. As a percentage of their total trade, however, any likely increase in intra-Middle-East trade is not large. And it is much harder to have confidence in any estimates of the changes in total trade that the countries will experience.

### **What Will They Trade?**

The gravity equation methodology addresses only the bilateral pattern of total trade, not the question of what products will be exported and imported between pairs of countries.<sup>2</sup>

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<sup>1</sup>Estimates of gravity equations sometimes include any of a variety of additional explanatory variables, such as dummies to represent membership in a preferential trading arrangement or a common language, in order to improve their explanatory power. One could of course introduce such variables and experiment until the fit of the equation is improved. But such experimentation could also be used to try to select results that fit better with the investigator's preconceptions, unless the criteria for inclusion are well spelled out in advance. Since the available theoretical underpinnings for gravity equations have so far only included effects of income and distance, I have chosen not to do such experimentation here.

<sup>2</sup>Investigators have occasionally estimated the gravity equation for sectoral trade. However I know of no theoretical justification for doing so and have therefore not attempted

However it is not difficult to predict in broad terms what sorts of products will be included in any expansion of trade, based on some of the general lessons of international trade theory.

The largest increases in bilateral trade that are predicted in Table 3 are between Israel, on the one hand, and the three Arab countries on the other. Because of the substantial difference in levels of development between Israel and the Arab countries reflected in the per capita GDPs in Table 1, it is likely that the bulk of this increased trade will be driven by the forces of relative factor endowments that explain trade in the Heckscher-Ohlin Model. That is, because Israel is much better endowed with capital and skilled labor than the Arab countries, it is likely to export a variety of capital- and skill-intensive manufactured goods to its Arab neighbors, once the deterrent to trade has been removed by peace. The Arab countries are relatively better endowed with unskilled labor than Israel, suggesting that they might export labor-intensive manufactures such as textiles back to Israel. However in most cases their shortage of capital is still sufficiently severe that even their labor-intensive manufacturing base is small, and their increased exports to Israel are probably more likely to be of natural resources. That includes oil, of course, for those that have it, much as Egypt is already exporting a substantial amount of oil to Israel under the agreement of the Camp David Accord.

The gravity model does not predict, in Table 3, a large increase in exports from Egypt to Israel, precisely because of that substantial export of oil, and the increase that does occur is therefore likely to be in other products. These would likely include raw cotton and cotton yarn for Israel's own textile and apparel industries.

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such an exercise here.

The only other large increase in trade predicted in Table 3 is between Egypt and Syria, whose trade would expand more than fivefold in both directions if it were to reach the levels typical between countries of their size and distance apart. These two countries currently export many of the same products to the rest of the world, including petroleum, cotton, and textiles. It is therefore harder to see what they might have to offer each other. However the lower wages in Egypt suggest a potential for exporting other labor-intensive manufactures, such as metal products, to Syria, while Syria is itself an exporter of a number of agricultural products, such as wheat, barley, and chickens, for which there should be a market in Egypt as its trade becomes more open.

There is also some potential for expanded intra-industry trade among the Arab countries, especially in labor-intensive manufactures. Reduced barriers to trade will permit them to specialize in narrower product lines than they do now and to begin to develop markets for differentiated products among each other's consumers. The common language that they share should facilitate this process. Eventually they may move toward something more closely approximating a single Arab market, in which producers in each country sell in all of the others.

## VI. Analysis of Opportunity for Increased Growth

Levine and Renelt (1992) examined a large number of variables that were candidates for explaining investment and growth in cross-country growth regressions. Their purpose was to evaluate the robustness of these relationships by seeing how the estimated coefficients and their significance changed when different combinations of other explanatory variables were included in the regressions. They found that almost all such relationships were fragile. However they did find that two relationships earlier estimated by Romer (1990) were robust. That is, the growth rate of GDP was robustly related to the share of investment in GDP, and the investment share was in turn robustly related to various measures of trade relative to GDP. I will combine these two relationships to construct a relationship between growth and trade, and then use that to translate the increases in trade due to peace from Section V into increases in growth due to peace.

Levine and Renelt (p. 946), in their base regression of the annual growth rate of GDP per capita (GYP) on the investment share in GDP (INV) and other variables,<sup>17</sup> report the following partial relationship:

$$\text{GYP} = \dots + 17.5 \text{ INV} \quad (4)$$

(2.68)

This says that an increase by one percentage point in the share of investment in GDP is associated with an increase of 0.175 percentage points in the growth rate of GDP. Thus an increase in the growth rate by one percentage point requires an increase in the investment share of 5.7 percentage points, corresponding to an incremental capital output ratio of 5.7.

They also report (p. 955) a base case regression of the investment share on the ratio of exports to GDP (X) and other variables. This regression includes the following partial relationship:

$$\text{INV} = \dots + 0.14 X \quad (5)$$

(0.024)

That is, an increase in the export share of one percentage point is associated with an increase in the investment share of 0.14 percentage points, so that a one percentage point increase in the investment share requires an increase in the export share of 7.1 percentage points.

Levine and Renelt go out of their way to make clear that their methodology does not establish any causal links among these variables, and indeed the point of their paper is more to demonstrate the fragility of other relationships than the robustness of these two. Nonetheless, in view of the increasing consensus that trade does stimulate growth, and in the absence of any other feasible way of quantifying that link, I will use their results for that purpose.

Together, then, equations (4) and (5) imply the following relationship between the export share and the growth rate of GDP:

$$\text{GYP} = \dots + 2.45 X \quad (6)$$

That is, an increase of ten percentage points in the ratio of exports to GDP is associated with an increase in the growth rate of 0.245 percentage points. Interpreting this relationship as reflecting causation from trade to growth, it therefore requires about a forty percentage point increase in the export share to induce a single percentage point increase in the rate of growth.

Table 5 reports the results of applying equation (6) to the increases in exports from Table 4. The increased trade with the focus countries only, due to peace, translates into increased

growth rates ranging from just under a tenth of one percent for Israel, up to more than a third of a percent for Jordan. These changes in trade, recall, are the ones about which we had some degree of confidence in the estimation of increased trade potential. They imply changes in economic growth that are, of course, positive, but they are quite small.

Allowing for changes in trade with all of the included countries in the world as a whole, on the other hand, produces much more diverse results for growth, as it did for trade. In Egypt, the 133% increase in exports in Table 4 translates to an increase in growth rate of three and a quarter percentage points, which is a sizable increase indeed. It should be remembered, however, that this increase in trade was thought to be plausible only if the peace is accompanied by a substantial economic liberalization in Egypt.

The decline in exports predicted for Israel in Table 4 translates similarly to a decline in growth of close to two percentage points. This, however, would be valid only if Israel's unusually large propensity to trade were attributable to conflict, and that seems unlikely.

The growth effect for Jordan is still positive, but it is reduced below the third of a percent reported for trade with focus countries only, to only 0.06%. This reflects the fact that Jordan's overall trade is subnormal (according to the gravity equation) mostly with the other Middle East countries, and not so much with the rest of the world. Therefore the expansion of exports to the former due to peace might come at the expense of a reduction of exports elsewhere, and the net effect on growth might be very small.

Finally, Syria is predicted to increase its growth rate by a full half percentage point once trade with all included countries is allowed for. This is not a particularly large increase, but it is

worth having nonetheless. As in the case of Egypt, however, it is likely that even this gain will require that peace be accompanied by economic liberalization.

## **VII. Is Peace Enough?**

This paper has examined a variety of economic benefits that may accrue to the countries of the Middle East if they succeed in negotiating and implementing a peace. These benefits, especially those that arise from freer trade and investment, presume that the countries will also come to look like the countries of the rest of the world in respects other than peace. In particular, it is crucial that they allow the economic benefits of reasonably free competition and market forces to operate after the peace is established. Since most of the Middle East countries currently do not allow market forces anything like free reign, this will require that the move to peace be accompanied by considerable liberalization of the countries' economic policies.

A notable example is Egypt, where Handoussa and Shafik (1993, p. 36) remarked of Egyptian-Israeli trade that "trade between the countries' public sectors varied with changing political circumstances, and contacts between private individuals were virtually nonexistent." This clearly must change if the benefits of peace are to be experienced.

Unfortunately, there may well be a considerable temptation to move toward more, not less, state intervention in markets. This is particularly likely in the Territories, where a move toward self-government is unlikely to lead to a government that limits its role in the economy. Ahiram (1993, p. 286) notes that "experience in newly established countries in the Middle East provides evidence that there is grave danger in overexpanding and overmanning these services, which then become a heavy and lasting burden...."

In addition, for all of the countries, the fact that any move toward freer trade will expose a substantial portion of each economy to competition from abroad will lead to demands for protection of the sort that are seen around the world in response to trade liberalization. But

the demands for protection will be worse here, because a substantial portion of the new competition will come, in each country, from their former enemies. Diwan and Papandreou (1993, p. 244) express this concern for the Arab countries: “

It is not clear how Arab business will react to the lifting of the Arab boycott on Israel, as such a measure (while optimal from an economic perspective) will increase competition for Arab producers and governments will be under pressure to continue protection, if not through a boycott then perhaps through other means.

I am told that analogous pressures have already arisen in Israel.

Finally, there is the question of whether the countries of the region can and should attempt the transition to peace, together with liberalization of their domestic economies and trade, alone, or should international assistance be provided? As noted above, the countries of the Middle East have come to rely on a considerable amount of assistance from their friends abroad in financing military preparedness, and these friends may be looking forward to peace in the hope that it will relieve them of this responsibility. However the adjustment costs of moving to a peacetime economy in the countries are considerable, especially if they allow the substantial reallocations of domestic resources that are needed in order to generate most of the ultimate benefits. Therefore it is important that the countries continue to receive aid from abroad.

How much aid it needed? There is nothing in my analysis here to answer that question. According to Diwan and Papandreou (1993, p. 251), “While precise estimates of needs are difficult to project in the absence of detailed studies, a total of \$10 to \$15 billion a year for all of the frontline states during the next five years seems a reasonable approximation.” How they arrived at this estimate is not clear, however, and perhaps the best recommendation now would be that “the detailed studies” that they say are needed be undertaken as soon as possible.

## **VIII. Conclusions**

This study has examined the economic benefits of peace in the Middle East primarily from two perspectives. A large portion of the paper was devoted to a broad ranging discussion of all of the kinds of benefits and costs that I could think of and that had been mentioned in the literature. I would conclude from that discussion that the economic benefits from peace can be considerable and diverse. Not everyone in the region will gain economically from peace, of course, but the likely gains are sufficiently broad that one should expect a noticeable general improvement in the standard of living of most residents of the Middle East countries to appear gradually after peace is achieved. One should not overstate these gains, nor understate the difficulties that will accompany the process of achieving them. But I think the discussion here reflects the literature on the subject in justifying a quiet confidence that peace will be very beneficial, not just in human terms but in economic terms as well.

The other perspective of the study has been to attempt to quantify one aspect of the likely economic gains from peace in the Middle East. This was done by estimating a gravity equation relating international trade to incomes and distances around the world, then using that equation to predict the trade flows that the countries of the Middle East would have experienced had their economic relations with each other and the world not been impeded by the dangers and animosities of the conflict. The increased trade that I have calculated as a result of peace may in turn be used to estimate the increase in economic growth rates that could also follow from the peace. The predicted increases in trade among the Middle East countries themselves are substantial relative to their existing trade, but overall they add only little to the trade of the countries with the world. Translated to effects on economic growth, this increased intra-Middle-

East trade may increase growth rates by only fractions of one percentage point. The analysis gave much more diverse results for the trade of the countries with the world as a whole, indicating a substantial increase in exports for Egypt, rather smaller increases for Syria and Jordan, and a decline in exports for Israel. Considering other facts that may account for these results, it seems likely that the effects of peace on growth through trade may be substantial only for Egypt, and even for Egypt this is likely to require that the peace be accompanied by considerable economic liberalization.

Nonetheless, considering the many mechanisms by which peace may benefit these economies that I have not been able to even begin to quantify here, I remain optimistic that peace in the Middle East will offer dramatic opportunities for improved economic efficiency and growth.

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	Population 1995, millions	Land Area, thou. sq. km.	Real GDP, 1994, \$bill.	GDP per Capita, 1994, \$	Unemploy- ment Rate, 1994, %	Trade		Military Expenditures as percent of GDP, 1986 <sup>a</sup>	External Debt, 1994/95,\$bill. <sup>b</sup>	
						Exports, fob 1994, \$bill.	Imports, cif 1994, \$bill.		\$bill.	% of GDP
Egypt	62.4	995	151.5	2,490	20	3.1 <sup>c</sup>	11.2 <sup>c</sup>	12	31.2	20
Israel	5.4	20	70.1	13,880	7.5	16.2	22.5	21	25.9	37
Jordan	4.1	89	17.0	4,280	16	1.4	3.5	15	6.0	35
Lebanon	3.7	10	15.8	4,360	35 <sup>d</sup>	.9 <sup>d</sup>	4.1 <sup>d</sup>	5.5 <sup>e</sup>	.8	5
Syria	15.5	184	74.4	5,000	7.5 <sup>d</sup>	3.6	4.0	18	19.4	26
Territories	2.1	6	5.7	2,710	39	.3 <sup>f</sup>	1.2 <sup>f</sup>	n.a.	n.a.	

Source: CIA World Factbook, 1995, unless otherwise noted. All figures are estimates.

a. Source: Diwan and Papandreou (1993, p. 242), from SIPRI, Yearbook, 1989.

b. Various dates: Egypt Dec 94; Israel Nov 94; Jordan Mar 95; Lebanon 94; Syria 93;

c. FY93/94

d. 1993

e. Reported for 1994 in the CIA World Factbook and may not be measured comparably to others in column.

f. 1992

Table 2  
Bilateral and Total Trade Flows, 1990, \$millions

Exporting Country		Importing Country					
		Egypt	Israel	Jordan	Syria	World	
						\$millions	% GDP
Egypt			163.1	21.5	13.5	2,573	2.3
Israel		2.0		n.a.	n.a.	12,151	23.5
Jordan		16.3	n.a.		14.8	1,061	8.6
Syria		18.1	n.a.	22.7		4,015	7.0
World	\$millions	9,902	13,851	2,655	2,360		
	% GDP	8.8	26.8	21.5	4.1		

Source: Statistics Canada

Table 3  
 Predicted Changes in Bilateral Trade Flows among Focus Countries,  
 1990, \$millions,  
 (with current → predicted levels and  
 percentage changes where available)

Exporting Country	Importing Country			
	Egypt	Israel	Jordan	Syria
Egypt		(163.1→174.1) <b>11.0</b> (6.7%)	(21.5→37.2) <b>15.7</b> (72.7%)	(13.5→128.8) <b>115.3</b> (852.1%)
Israel	(2.0→158.8) <b>156.8</b> (7857.3%)		(0.0?→129.1) <b>129.1</b>	(0.0?→169.6) <b>169.6</b>
Jordan	(16.3→28.6) <b>12.3</b> (75.6%)	(0.0?→109.0) <b>109.0</b>		(14.8→45.0) <b>30.2</b> (204.2%)
Syria	(18.1→118.9) <b>100.7</b> (556.2%)	(0.0?→171.6) <b>171.6</b>	(22.7→54.0) <b>31.2</b> (137.3%)	

Source: Table 2 and Equation (3).

Table 4  
 Predicted Changes in Total Trade of Focus Countries with World,  
 Based on Predicted Increases *vis a vis* Focus Countries Only  
 and *vis a vis* All Included<sup>a</sup> Countries  
 1990, \$millions  
 (with current → predicted levels and  
 percentage changes where available)

	Exports		Imports	
Based on predicted changes in trade with:	Focus countries only	All included <sup>a</sup> countries	Focus countries only	All included <sup>a</sup> countries
Egypt	(2,573→2,715) <b>141.9</b> (5.5%)	(2,573→5,998) <b>3,425</b> (133.1%)	(9,902→10,172) <b>269.9</b> (2.7%)	(9,902→7,109) <b>-2,793</b> (-28.2%)
Israel	(12,151→12,606) <b>455.5</b> (3.7%)	(12,151→3,522) <b>-8,629</b> (-71.0%)	(13,851→14,143) <b>291.6</b> (2.1%)	(13,851→3,484) <b>-10,367</b> (-74.9%)
Jordan	(1,061→1,213) <b>151.6</b> (14.3%)	(1,061→1,088) <b>27</b> (2.5%)	(2,655→2,831) <b>176.0</b> (6.6%)	(2,655→1,617) <b>-1,038</b> (-39.1%)
Syria	(4,015→4,319) <b>303.6</b> (7.6%)	(4,015→4,907) <b>892</b> (22.2%)	(2,360→2,675) <b>315.1</b> (13.4%)	(2,360→3,863) <b>1,503</b> (63.7%)

Source: Table 2 and Equation (3).

a. Included countries are the 85 for which 1990 GDP data are available.

Table 5 Predicted Increases in Annual Growth Rates of GDP, Based on Predicted Increases in Exports Due to Peace		
Based on predicted increases in trade with:	Focus countries only	All included countries
Egypt	0.13	3.26
Israel	0.09	-1.74
Jordan	0.35	0.06
Syria	0.19	0.54

Source: Equation (6) and Table 4.

## Notes

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1. See for example Haveman et al. (1992)
  2. Some other countries in the Middle East spend even more, most notably Iraq. See Diwan and Papandreou (1993, p. 242).
  3. El-Naggar and El-Erian (1993, p. 208).
  4. The estimate by Levine and Renelt (1992) reported in equation (4) below suggests a somewhat higher ICOR of 5.7, and thus a correspondingly smaller stimulus to growth.
  5. See Levine and Renelt (1992) for the capstone to this literature that shows that trade and investment are just about the only correlates of growth that turn out to be robust.
  6. See Handoussa and Shafik (1993, p. 41), who cite a concern that “Arab migrants, because of their shared language and culture, could more readily become politically active in their host countries.”
  7. Hilan (1993, p. 72), for example, notes that in Syria, “most conscripts generally retain their civilian jobs.”
  8. Tyler (1993, pp. 84, 85)
  9. This view is cited, but also disputed, by Hamed and Shaban (1993, p. 121). They point out (p. 138) that, while over 90% of the Territories’ trade is with Israel, this has been the result of severe Israeli restrictions on other Palestinian imports, and the fact that Israeli traders act as intermediaries for Palestinian exports.
  10. Actually, if the trade barriers are not too large, one does not need data on all of these items, since the actual trade pattern is by itself indicative of what these must have been.
  11. See Srinivasan and Whalley (1986) for examples of a number of these models. Deardorff and Stern (1986) includes an analysis of the Tokyo Round tariff cuts and Brown et al. (1995) analyzes the Uruguay Round.
  12. See Deardorff and Stern (1985) for more on the difficulties of measuring NTBs.
  13. Early uses of the gravity equation were by Tinbergen (1962) and Pöyhönen (1963).
  14. See Deardorff (1995).
  15. Recent empirical applications of the gravity equation may be found in Frankel, Stein, and

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Wei (1994), Hummels and Levinsohn (1995), and McCallum (1995). The empirical success of the gravity equation contrasts markedly with the failure of other predictions of trade theory to match with the data. See Leamer and Levinsohn (1995) for a recent survey of this literature.

16. This group, as it happened, excluded the Soviet Union/Russia. I intended the cutoff for country size to span the sizes of the focus countries, but since the Penn World Tables do not include Lebanon or the Territories, I based the cutoff on the smallest included focus country, Jordan.

17. The other variables are real GDP in 1960 (the beginning of their time series), the population growth rate, and the initial secondary-school enrollment rate.