

Peace, its Causes and Economic Value

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EXECUTIVE SUMMARY

Humanity is currently facing some of the greatest challenges in its history: economic, environmental, social and financial. Yet such tumultuous change provides a unique opportunity for us to reconsider and redefine the issues that are essential to our survival, such as peace.

In this report we seek to examine the causes and economic value of peace in relation to the Global Peace Index (GPI). We do so by conducting three distinct types of analysis, starting with a statistical investigation of the entire GPI database to uncover the structure, causes and value of peace. We then examine cross-national attitude surveys on a variety of social issues and how they relate to peace, and, finally, we present a conservative estimation of the economic worth of the cessation of violence to the world. It is hoped that this work will be useful to academics, politicians, business leaders, civil servants, philanthropists and non-governmental organizations (NGOs) in their efforts towards building a more peaceful world.

During the last twenty years humanity has entered into a new epoch in its history. This has been brought about by a convergence of many factors. Finite environmental barriers are now being reached and on multiple fronts. World population is expected to reach seven billion within a couple of years and in many places in the world it is already at straining capacity. Technology is fuelling change at an ever increasing pace which in many ways underpins the growth of globalization. The world is connected in ways that were unimaginable even fifty years ago. Wars are no longer economically viable. Change is occurring so fast that nations are struggling to keep up with both the legal and social

ramifications. Even our language is changing, daily incorporating new words to describe our changing reality. Our notions and concepts of peace are changing with it.

“Global challenges call for global solutions and these solutions require cooperation on a scale unprecedented in human history. Peace is an essential prerequisite because without peace we will be unable to achieve the levels of cooperation, inclusiveness and social equity necessary to solve these challenges, let alone empower the international institutions necessary to address them.”

Peace lies at the centre of being able to manage these many and varied challenges, simply because peace creates the optimum environment in which the other activities that contribute to human growth can take place. In this sense, peace is a *facilitator* making it easier for workers to produce, businesses to sell, entrepreneurs and scientists to innovate and governments to regulate.

The Global Peace Index is the first study ever to rank the nations of the world by their peacefulness. Now in its third year, ancillary research has led to new and intriguing ways of analysing peace.

Research that has been undertaken using data from the Global Peace Index has shown that societies that have well functioning governments, low levels of corruption, high participation rates in primary education, freedom of the press and good relations with their neighboring states are more likely to be peaceful. It was also noted in the research that when a democracy does not have the above mentioned peace structures then elections can be a catalyst for violence.

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The benefits brought about by peace can also be measured in economic terms. Peace does in fact have a monetary value independent of the human values associated with it. It can be expressed in terms of the additional value to global GDP¹ that would ensue from creating a peaceful world. The *Institute for Economics and Peace*² in conjunction with *the Economists for Peace and Security*³ have released an insightful study which assesses the **impact of lost peace on the world economy at 7.2 trillion dollars (US\$7,200,000,000,000) annually. Over a ten year period this adds up to US\$72 trillion**⁴. This figure is comprised of US\$2.4 trillion annually that would move from industries that create or manage violence to other economic activities and US\$4.8 trillion from additional economic activity that had been suppressed through violence. A synopsis of the study is contained in this report along with a framework which assesses the benefits to specific industries from improved levels of peacefulness.

If the cost of investing in proactive peace-creation was minimal compared to the lost potential caused by violence, then would it not be fitting for business to engage with government to create peace in the markets in which they operate?

Although the *'Defence Industry'* is a well-defined concept, there is no clear identification or definition of the *'Peace Industry'*. The Peace Industry comprises those companies and industries whose markets improve with improving peacefulness or whose costs decrease with improving peacefulness. Examples include retail, finance, tourism and insurance. Research indicates that there is a relevant relationship between a nation's ranking in peacefulness and the size of its retail sector, stock market and tourism

industry, and that changes in peacefulness could be used to calculate changes in market size. Understanding these trends will help business to better assess opportunities and avoid risk.

The social values and beliefs that are associated with peace have also been analysed. By correlating the results of the GPI against global polling data we have been able to gain a better insight into the social environment of peace. Some intriguing findings have resulted from the research and are presented in this report. The most striking is the extremely high correlation (0.88) between a country's ranking in the Global Peace Index and how positively it is perceived by other nations. This implies that if a nation wishes to improve its international standing then a good way of doing it is to increase its peacefulness as measured by the GPI. Other societal attitudes that correlate with peace are tolerance, belief in the importance of freedom of the press, respect for human rights, not believing that one's own nation is superior to others and believing that the use of the military should be limited and internationally sanctioned.

But if peace is an essential prerequisite for solving our sustainability challenges and improving our economic and social well-being then having a good understanding of peace is essential. This poses the question *"how well do we understand peace"*? Fifty years ago peace studies were non-existent. Today there are peace and conflict centres in numerous major universities around the world. Over the last century we moved from having departments of war to departments of defence and we are now seeing the emergence of organizations that are lobbying for the creation of departments of peace.

¹ Gross Domestic Product is an economic measure of the total productivity of a country within its borders.

² The Institute for Economics and Peace (IEP) was established in 2008 as an independent not-for-profit research institute dedicated to developing the inter-relationships between business, peace and economic development.

³ www.epsusa.org

⁴ "Defining Peace Industries and Calculating the Potential Size of a Peace Gross World Product by Country and by Economic Sector", Jurgen Brauer and John Tepper Marlin, April 2009.

While these changes are beneficial in improving our understanding of peace, peace has not yet become germane to the major academic disciplines, nor is there a concerted approach to the cross disciplinary study of peace.

War and violence are not inevitable. All human societies have developed mechanisms for settling unproductive conflicts and providing a conducive environment for human development. This is an essential part of our human nature. As globalization embraces humanity we now need to extend these natural impulses to be globally inclusive and create a peaceful world so that we can move forward with the things that really matter.

This year, with the economic crisis impacting most societies, global peacefulness has actually slipped. However, contrary to popular belief, the world in the last twenty years has become more peaceful. The frequency and lethality of wars has been declining since the end of the Cold War in 1989⁵. Since 1990 more wars have ceased than have started and the number of negotiated settlements has steadily increased⁶. One of the biggest beneficiaries of this has been business. The graph below highlights the decrease in the number of conflicts from forty to thirty and the increase in global GDP from 32 trillion to 55 trillion over a seven year period.

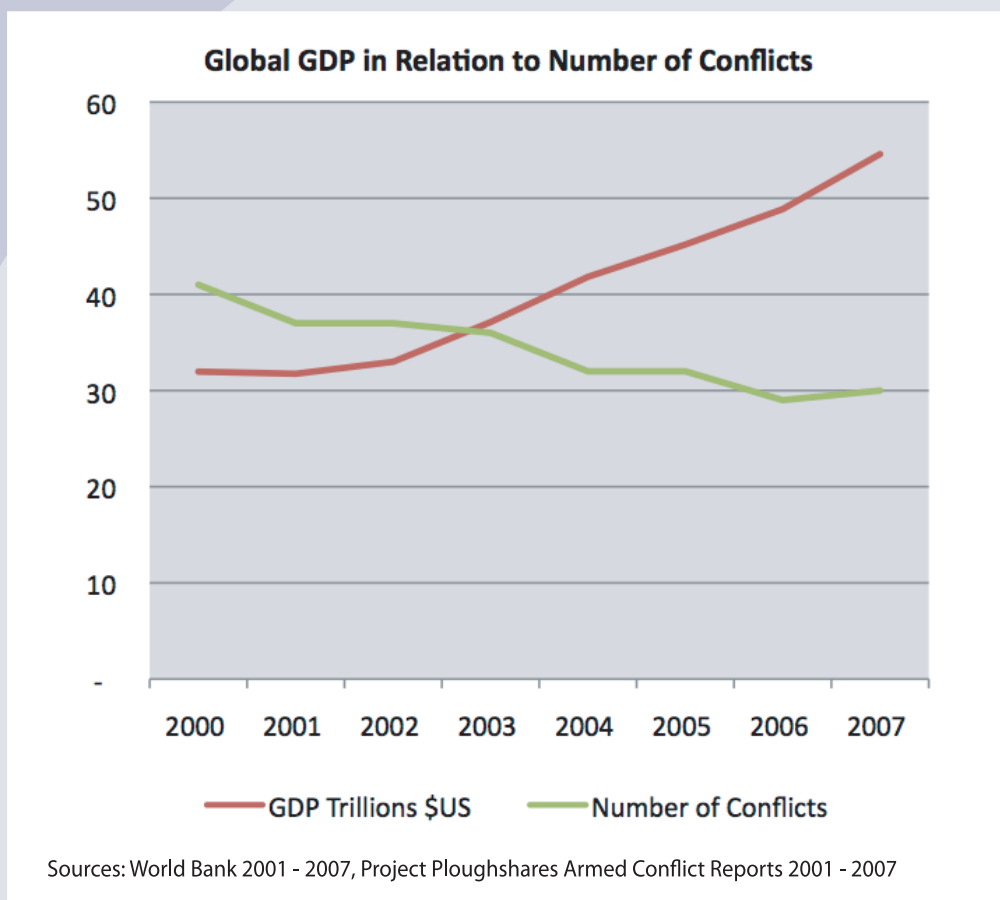


Figure 1: GDP growth and incidence of conflicts 2000 - 2007.

⁵ While in 1990 the world was engaged in 56 wars, in 2007 the total number of wars had declined to 34 and in 2005 there were 21,765 battle deaths, 5 times less the number of deaths in 2000. Source: The State of the World Atlas, eighth edition, Dan Smith.

⁶ Global non-state conflicts also decreased, with a total down from 36 conflicts in 2002, to 24 in 2006. Source Human Security Brief 2007.

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Many of the processes of peace are self-reinforcing. Business cannot really develop until conflict stops but once started productive employment can have a self-reinforcing effect. People become motivated by the improved standard of their lives, rather than seeking retribution for past wrongs. This creates the optimum environment for business to thrive. This is known as a virtuous cycle. Similarly, when economic development contracts, violence will almost certainly increase, leading to a further deterioration of the business environment.

The Global Peace Index and the research associated with it has helped to increase our understanding of peace, however the field is new, its value to society is not well understood and is also poorly funded. These issues are inter-related but the importance of peace in a global society where the major challenges of this century require international co-operation on a scale unparalleled in our history means peace is central to being able to manage a better future. Therefore peace is the prerequisite for the survival of society as we know it in the 21st Century.



THE IMPORTANCE OF PEACE IN THE CURRENT GLOBAL ECONOMIC CRISIS

The current financial and economic crisis has been recognized as the worst the world has experienced since the Great Depression. Whether the situation will deteriorate further will mainly be determined by the actions that governments and central banks take over the next two years. In order to be effective, these actions need to be broader than domestic economic stimulus packages. Severe global economic downturns do lead to an increase in violence and violence does have a further damaging impact on the economy. **Improving global peacefulness will help to avoid further economic loss and will also create an environment for enhanced future development.** Peaceful nations are better able to respond to the economic crisis due to their inherent qualities of peace.

The major challenge for the next fifty years will be global sustainability; peace is a prerequisite to solve it. Therefore focusing on peace will prove to be beneficial in the short, medium and long term.

The US Director of National Intelligence, Dennis C. Blair, told the US Congress in February 2009 that instability in countries around the world caused by the current global economic crisis, rather than terrorism, is the primary near-term security threat to the United States.

“Roughly a quarter of the countries in the world have already experienced low-level instability such as government changes because of the current slowdown, ... the most immediate fallout from the worldwide economic decline for the United States will be allies and friends not being able to fully meet their defence and humanitarian obligations.”

Blair went on to provide a threat assessment, the essence of which was that the global economic crisis may represent the most threatening challenge to the preservation of world peace since the end of the Cold War.

Global debt levels are at record highs and the depressed terms of trade that many nations are facing will place pressure on their ability to service these debts. This will in turn draw expenditure away from social security, education, health and other areas that are vital for a well functioning society. International organizations will need to act pre-emptively with debt forgiveness or interest deferment programs to avoid worst case scenarios. Although difficult, governments must aim at meeting their Overseas Development Assistance (ODA) targets. ODA funds, when managed and targeted properly, will provide the recipient governments with the resources to bestow the basic services and governance that their societies need, which will then alleviate future social unrest and crime.

The history of the First and Second World Wars shows that the massive war debt owed by Germany after the First World War laid the foundation for what came later. The servicing of the national debt during the Great Depression led to the collapse of Germany's economy and society. Adolf Hitler captured the hopes and imaginations of a citizenry who were totally demoralized by the economic collapse. Hitler promised to end the humiliating conditions caused by the German defeat in WWI and capitalized on the dropping of the repatriation payments to demonstrate nationalistic self interest.

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He then used the money to entrench his power. He got Germans back into the factories as well as rebuilding the shattered German military machine and his ruthless internal security apparatus. His aggressive, racist policies made the prospect of future hostilities almost inevitable.

Today, many of the nations most affected by the economic crisis are the world's poorest. Once nations are impoverished, feel under threat and are captured by strong, aggressive, nationalist leaders it is very hard to undo the momentum. The only workable solution is for the international community to provide the necessary help before unpalatable governments do arise. *Building the structures of peace into governments' ODAs may prove to be one of the most unique, far reaching and effective actions possible.*

If Europe and the US were to vastly reduce their farm subsidies, many of the poorest nations of the world would benefit from the long term economic stimulus that this would provide, thereby helping to avoid economic implosion. Many of the nations with the highest levels of debt are also the nations with the highest levels of dependence on agricultural exports whereas many of the nations with the highest levels of agricultural protection are least dependent on the agriculture sector. As an example, agriculture represents 1.1% of the economy in Germany, 1.2% in the US, 1.3% in Japan, 1.4% in Switzerland and 2.5% in France. Although politically unpopular, one of the best ways to support global economic equity would be to fully embrace the Doha round of trade negotiations. The cost of many food items in Europe and the US would drop and

the freeing up of the funds used to protect the farm industries could either be used to reduce the size of their national debt or to fund future stimulus packages. In the US this may not be as hard as it seems. A recent opinion poll conducted by the Program on International Policy Attitudes on the attitude towards farm subsidies by the American people found that:

“80% of US subsidies go to large farming businesses, however only 36% of Americans favour such subsidies, while 61% oppose them. Opposition to subsidies for large farms was not substantially or statistically different between Republicans (62%), Democrats (60%), and independents (59%)”

“77% of Americans do however, favour providing subsidies to small farms, i.e. farms under 500 acres ... Most small farms do not receive subsidies”

Humanity has now entered a time of global challenges the like of which has never been experienced before. These challenges will be with us for at least fifty years, they will require a level of global co-operation unparalleled in human history. They are the multifaceted challenges of sustainability comprising climate change, depletion of fresh water resources on the planet, ever decreasing biodiversity, loss of fertile land and overpopulation, which lies at the heart of all our sustainability issues.

Without a world that is basically peaceful it will be impossible to achieve the levels of co-operation, trust and inclusiveness that are necessary to solve these challenges, let alone empower the international institutions to create and govern the necessary policies. Therefore, peace is a prerequisite for the survival of society as we know it in the 21st Century.

Peaceful countries are better positioned to manage change than countries that are steeped in violence. Research, which has been derived from the Global Peace Index, sheds light into the factors that correlate with peace. These factors can be broken into two broad categories: societal values and societal structures. Societal values that are associated with peace include tolerance, co-operation, respect for human rights and an equitable distribution of the nation's wealth. The societal structures associated with peace include well functioning government, low levels of corruption, high levels of school enrolments, good relationships with neighbors, freedom of the press and a higher level of per capita income.

It could be argued that the foreign policy of many Western nations over the last decade has placed an undue emphasis on defence while under-utilizing other instruments such as diplomacy and development. This can be seen by the rising defence budgets of many major nations and a lack of commitment to meet the targets of Overseas Development Assistance particularly as they were agreed to for the achievement of the Millennium Development Goals.

The Centre for Strategic International Studies and the Brookings Institute recently convened forty of the US's leading policy experts and

practitioners on development⁷. They came to the following conclusion:

The security rationale for stability and development in poor and fragile states is based on the understanding that strengthening the economy of states and ensuring social equity are in the short and long term interests of the United States. Stable states pose the United States with far fewer security challenges than their weak and fragile counterparts. Indeed, stable states with healthy economies offer the United States opportunities for trade and represent potential partners in the fields of security and development. In contrast, weak and failing states pose serious challenges to the security of the United States, including terrorism, drug production, money laundering and people smuggling. In addition, state weakness has frequently proven to have the propensity to spread to neighboring states, which in time can destabilize entire regions.

Similarly it has been demonstrated that violence has a dampening effect on economic activity.⁸ *It could be said that peace is the lubricant for positive change.*

More peaceful nations are better placed to face change in positive ways. Iceland, the country that topped the 2008 Global Peace Index, provides an excellent example. Iceland is one of the nations most affected by the current economic downturn. Although Iceland's drop in GDP has been dramatic, and there have been numerous public demonstrations and protests, the country has not fallen into civil violence. Thanks to its ability to avoid wide-scale violence, the country is much more likely to recover.

⁷ "Civil-Military Relations, Fostering Development, and Expanding Civilian Capacity" CSIS-Brookings Report, Frederick Barton and Noam Unger.

⁸ "Defining Peace Industries and Calculating the Potential Size of a Peace Gross World Product by Country and by Economic Sector", John Tepper-Marlin and Jurgen Brauer, Economists for Peace and Security. Refer to pages 30-41 of this document.

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Iceland is in fact changing quickly and without massive social upheaval. The Social Democrats, with 32% of the vote, have formed a coalition with the Greens to form a new government. Another party, which was formed at the height of the economic collapse, the Civic Movement has polled 8% of the vote. The new government plans to quickly apply for EU membership with the aim of being ratified within four years. This would enable Iceland to adopt the Euro thereby securing a stable currency and creating a new set of trading relationships.

In summary, as we learn more about the qualities of peace and the economic benefits that are associated with it, it becomes apparent that investments in peace carry with them substantial long term benefits. Many of the social values and structures of peace cannot be quickly introduced into most societies; however there are numerous global economic actions that can be implemented rapidly that will have substantial benefits for peace and the global economy. Key measures include decreasing agricultural trade barriers; debt or interest relief for heavily indebted nations; and a commitment to meet agreed levels of Overseas Development Assistance.



ANALYSIS OF THE IMPACT OF PEACE ON ECONOMIC GROWTH

In recent times, industry has been taking a closer look at peace. The United Nations Global Compact recently conducted a world-wide survey of senior managers in their member companies. Eighty per cent of respondents felt that the size of their markets increased with increasing peacefulness and 79% felt that their costs decreased with improving peacefulness. However, only 13% were aware of metrics or tools that shed light on the peacefulness of the markets in which they operated. Although it may seem intuitive to most business people that peace is good for their bottom-line, it can be seen from the respondents' answers that not enough research has been conducted into the relationship between business and peace.

Analysis using the Global Peace Index strongly supports the contention that peace contributes to a country's economic growth. This has been suggested previously in the economic literature but the statistical indicators used to represent conflict and peace has been somewhat narrow and limited.

The GPI is a comprehensive indicator of internal and external peacefulness. When included in a range of econometric models it shows a strong and consistently positive relationship between peace and growth. There are many opportunities for further exploration of the peace-growth relationship, and there may be other ways in which peace contributes to growth, but the analysis discussed here provides **a solid foundation for the basic and important conclusion that peace is good for economic growth in most or all countries.**

Statistical research was conducted by Dr Ben Goldsmith from the Department of

Government and International Relations at the University of Sydney, Australia. The research that has been carried out around the Global Peace Index has found that there is a strong case to link economic growth and peace.

Dr Goldsmith's analysis has shown that peace is a potentially powerful factor in economic growth. Even after accounting for a number of other key factors affecting economic growth, analysis that uses advanced spatial econometric techniques⁹ indicates that *a 1-point improvement in a nation's Global Peace Index score adds 1.49 percentage points⁹ to a country's annual economic growth.*

The Global Peace Index uses a measurement scale of one to five. Thus a country with a GPI score of 2 would be expected to achieve an annual economic growth rate 1.49 percentage points higher than an otherwise comparable country with a GPI score of 3. It needs to be emphasized that this is not the result of a simple correlation, which could be subject to spurious inferences. Rather it is derived from econometric analysis of economic and demographic factors including wealth, population, international trade and corruption as well as structural factors that are represented by the previous year's growth rate (technically, a lagged dependent variable). In carrying out the analysis, the research has also taken into account the spill-over economic growth from countries that are in the same geographic region.

There are many other variables that proved to be insignificant in numerous models¹⁰ aiming to explain economic growth, but peace as measured by the GPI is consistently

⁹ A 1 percentage-point increase is, for example, from 2% GDP growth to 3% GDP growth.

¹⁰ Econometric regression analysis allows us to account for, or control, the effects of other factors, in order to estimate the independent effect of peace.

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important and the most significant factor with a 93% statistical significance after the lagged dependent variable and spatial lag were accounted for. *This means that peace, as measured by the GPI, has a relationship with economic growth which is statistically reliable and robust.*

Independent research undertaken by Sterling Huang from the Department of Economics at Macquarie University has uncovered positive relationships between retail sales and peace as measured by the Global Peace Index. On average, for every 10 place improvement in the 2008 Global Peace Index:

- Gross Domestic Product increases by approximately US\$3,100.
- Consumer spending on food and non-alcoholic beverages increases by approximately US\$132 per head of population.
- Consumer spending on clothing and footwear increases by approximately US\$65 per head of population.
- Consumer spending on leisure and recreation increases by approximately US\$144 per head of population.
- Consumer spending on household goods and services increases by approximately US\$87 per head of population.
- Consumer spending on housing increases by approximately US\$309 per head of population.
- Consumer spending on communications increases by approximately US\$42 per head of population.
- Consumer spending on transport increases by approximately US\$175 per head of population.

The effects of violence on economic performance in past studies have been consistently negative, however sometimes it has been statistically insignificant due to the very broad measurements that have been used. The GPI measure of peace on the other hand is both substantively and statistically significant in similar analyses. It is reasonable to assume that this stronger and more reliable relationship between peace and economic growth emerges in Dr Goldsmith's analysis because the GPI is a more comprehensive indicator of the presence of peace in each country. Other academic literature has looked at the economic performance of peace by examining factors related to a "peace variable" in multi-country studies. Yet the peace variable has been rather broad, using indicators such as "social disturbance", "revolutions," "assassinations," or "civil war" (Collier and Gunning, 1999: 66).¹¹

It is important to note that while econometric analysis can show a statistical correlation, it cannot provide a causal explanation. For that, a conceptual understanding of how peace might have an effect on economic performance is needed. It is necessary to make a solid case that peace is an important independent factor that contributes to growth, along with other factors.

Peace creates the environment in which other activities that contribute to growth can take place. In this sense, it is a facilitator of growth, making it easier for workers to produce, businesses to sell, consumers to buy, entrepreneurs and scientists to innovate, and government to regulate. This concept could be labeled 'normal growth dynamics'. The assumption is that normal activities which contribute to growth and prosperity can be

¹¹ Collier, Paul and Jan Willem Gunning. 1999. "Explaining African Economic Performance," *Journal of Economic Literature* 37 (1): 64-111. For a discussion of some of the potential pitfalls in cross-national modeling of growth, and an assessment of reliable results, see Temple (1999), Jonathan. 1999. "The New Growth Evidence," *Journal of Economic Literature* 37 (1): 112-156.

hindered by war and violence, even if the productive capacity itself exists. Thus, human capital, good infrastructure and open markets may be important factors in growth, but their contributions will be diminished or even eliminated if they are subject to violence and serious societal conflict.¹²

Peace also frees up resources for productive activities which would otherwise be diverted to controlling or creating violence. This is true for material and human resources as well as for investment capital. Finally, peace creates a stable environment that is congenial to confidence and long-term planning.

This then supports rational risk-taking, investment, employment, borrowing, and strategic planning, all of which are important to produce highly productive activity.

As the correlation between peace and economic growth is further understood business will become more aware of the benefits of peace to their markets, costs and profits. This should encourage industry and business leaders to work with their governments to raise the levels of peacefulness in the areas in which they operate, thereby contributing to or even triggering a virtuous cycle where peace reinforces business and business reinforces peace. This will be beneficial to all.

¹² This hypothesis implies an interaction effect between peace and other factors. This suggests that the econometric models employed do not fully specify the peace-growth relationship because they do not include multiplicative interaction terms for the GPI and other variables in the model. This is a promising area for future exploration, but it does not undermine the basic results considering peace as a single independent variable.

THE STRUCTURE AND CAUSES OF PEACE

To create a better understanding of the structure of peace, analysis was conducted on the GPI by Dr Ronald J. Horvath and Dr Ben Goldsmith, both from the University of Sydney, using a statistical technique known as Principal Factor Analysis (PFA). The PFA identified that there are three core elements of peace and that these three elements cross the boundaries of the internal and external peacefulness of a nation.

The three core elements are: **Social and Political Peace; Demilitarization;** and, **State of National Security.** The first factor relates to the degree to which non-violent conflict resolution is actually practiced within a society, and also in the country's relations with other countries. This includes elements representing political stability, respect for human rights, ease of access to firearms, level of social distrust among citizens, level of violent crime, the degree of tension in relations with neighboring countries, and numbers of displaced people as a portion of the population.

The second element, the actual **Demilitarization**, is measured by troop deployments and deaths from conflict. Demilitarization relates to traditional understandings of peace as simply the absence of war. It is a necessary but insufficient measure of peace as defined by the GPI.

Finally the third factor relates to the **State of National Security.** This is represented by elements, including measures of military capabilities in terms of amounts and sophistication of weapons, and measures of the numbers of soldiers and internal security officers, relative to the total population. This aspect of peace represents a country's capacity for violence, and also the opportunity cost

in terms of material and human resources which could be devoted to other productive activities.

These three aspects of the structure of peace can be applied to any society's internal relations among its people, and also its external relations with other societies. An important point is that the Principal Factor Analysis shows that the statistical components of the GPI group quite naturally into these categories or factors. The conclusion is that the GPI has a fairly high level of statistical integrity and cohesion.

Causes of Peace

Using an extensive dataset of over 40 potential "drivers"¹¹ of peace and running "ordinary least squares" (OLS) regression analysis, the researchers have been able to identify the 10 most statistically reliable "correlates of peace". These include six items which do cause countries to become more peaceful, and four which, when lacking the correlates of peace, cause countries to become less peaceful. Researchers have further been able to identify, through OLS regression, the relative size of the effects of these factors on peace (Table 1).

The *drivers of peace* and the *drivers of violence* can be determined by the direction they influence a country's movement in the GPI score and rankings. Drivers of peace improve the GPI score and drivers of violence worsen the GPI score. Their relative impact is assessed by how much a 1-standard deviation movement in the variable would on average affect the GPI score of any given country in the analysis. Table 1 lists these variables, top to bottom and from the most peaceful to the least.

The Drivers of Peace and Violence: Negative values drive peace; positive values (shaded) drive violence					
Driver	Coef.	P>t (significance)	Average effect on GPI (mean* coeff)	1-standard deviation effect on GPI (s.d.* coeff)	Measurement
Functioning of government	-0.08	0.000	-0.435	-0.204	Qualitative assessment of whether freely elected representatives determine government policy. Is there an effective system of checks and balances on the exercise of government authority? Ranked 1-10 (very low to very high).
Freedom of the press	-0.01	0.000	-0.565	-0.184	The index measures the state of press freedom in the world, reflecting the degree of freedom journalists and news organizations enjoy in each country, and the efforts made by the state to respect and ensure respect for this freedom. High values indicate more freedom.
Extent of regional integration	-0.10	0.001	-0.319	-0.109	Qualitative assessment of the level of membership of regional trade blocks and other regional organizations. Low to high.
Life expectancy	-0.01	0.059	-0.422	-0.079	Years
Primary school enrolment ratio	0.00	0.028	-0.429	-0.071	(% net); percentage
Women in parliament	0.00	0.097	-0.070	-0.042	Calculated as a percentage of the total number of representatives in the lower house.
Importance of religion in national life	0.05	0.049	0.131	0.053	Qualitative assessment of the importance of religion in politics and social life. Ranked 1-5, low to high.
GDP per capita	0.05	0.093	0.204	0.076	Nominal gross domestic product per capita. Ranked 1-5, low to high.
Hostility to foreigners / private property	0.09	0.001	0.126	0.098	Qualitative assessment of societies' hostility to foreigners or to private ownership. Ranked 1-5, low to high.
Electoral process	0.07	0.000	0.433	0.252	Qualitative assessment of whether elections are competitive in that electors are free to vote and are offered a range of choices. Ranked 1-10, very low to very high.

Model information: OLS regression; R2= .7044; N=139; F=30.5, P>F=0.0000

Table 1: Drivers of Peace and Violence.

THE STRUCTURE AND CAUSES OF PEACE

Drivers of Peace

Among the drivers of peace, the most important is the **effective functioning of government** followed by **Freedom of the press**. Gender equality, as measured by the percentage of **women in parliament**, is a modest driver as well.

The three remaining drivers of peace have strong economic or demographic foundations: **regional trade blocs** or other regional organizations, the average **life expectancy** of the population, and the **primary school enrolment** ratio. These highlight the degree to which economic cooperation and welfare may be conducive to peace. It is also interesting to note that although primary school enrolments are associated with peace, neither the percentage of GDP spent on education, nor the ratio of university enrolments, correlate with peace.

Drivers of Violence

The drivers of violence are those factors which have the effect of making a country's GPI score higher: the higher the score, the less peaceful the country. These factors can be divided into political and demographic factors. The most potent political factor is **competitive elections**. If a society has the peaceful drivers mentioned in the preceding section absent, then the competition inherent to an election can create violence. This somewhat surprising result indicates that when the political system is dysfunctional or unfair, competitive elections can actually be a source of more serious conflict. This certainly lends a note of caution to the common talk of a "democratic peace". Further research is necessary so that we do not over-simplify the findings.

To test further these implications we examined the **combined effect of fair and free**

elections and good democratic governance.

When the control group of variables is taken into account, there is no statistically significant effect between elections and the functioning of government. There is strong evidence that these factors do indeed have opposite effects, and can legitimately be *considered as independent political factors*. This means that free and fair elections can increase the likelihood of violence if a well functioning government is lacking and the drivers of peace are not present.

Another political factor which drives conflict is the degree to which **religion** plays an important role in national life. The variable does not measure whether a country's population is devout or actively practising a religious faith, but rather whether religion is intertwined with politics thereby leading to religiously driven laws and government policies. The factor's importance does not imply that religion creates violence; rather that violence occurs when the state uses religion to its own ends or when organized religion takes over the state and then uses the state to fulfill its own ends.

One of the most striking correlations is the **level of wealth**, as measured by GDP per capita. Although it is strongly correlated with peace, an increase in GDP per capita does not necessarily lead to peacefulness. If the drivers of peace mentioned above are absent, it becomes evident that, for some nations, a high GDP income provides the state with the tools of conflict such as weapons, large security apparatuses and military forces. The research indicates that if the economic indicators of a nation's wealth are relatively evenly distributed, such as being distributed through education and health, the society will be more peaceful.

These factors have been used as controls in the model and can give us a more nuanced understanding of how prosperity can improve peace and why general social welfare is important.

Less significant and insignificant variables

It is also important to note some of the factors that did not seem to correlate with peace. There are a number of factors which measure different aspects of education, health, democracy, or economic interdependence. While some of these factors proved important, others which are related did not achieve the same levels of influence or significance in the models. Their exclusion should be seen as an indication that they are overshadowed by other more closely related measures, rather than being completely unimportant. Some of these factors were the **adult literacy rate, infant mortality rate, mass political participation, and levels of imports and exports.**

There is also another set of variables that were found to have *insignificant* levels of correlation with peacefulness. Perhaps of most interest is a demographic factor that is comprised of **males aged 15-34 as a percentage of the population.** This corresponds to the controversial “male youth bulge” hypothesis in conflict analysis¹³, especially in relation to civil wars (e.g. Urdal 2006¹⁴). When models account for the effects of the 10 drivers in Table 1, there is no statistical evidence that the male youth bulge has any effect on conflict or peace.

Another variable which is of potential interest for its *unimportance* is **higher (tertiary) education.** In contrast to the robust peaceful effect of primary education, the analysis shows that a greater proportion

of a country’s population having tertiary education has no discernible effect on peace. This distinction may have important policy implications, especially for poorer societies and their bilateral donors whom often face difficult choices involving scarce financial resources. Primary education does add benefits for peace, while high levels of tertiary education appear not to.

A third hypothesized driver of peace, which turns up as consistently insignificant in our analysis is **tourism**, at least as measured by the percentage of visitors among the total population. While it seems reasonable that peace is good for tourism, and the tourism industry, there is no evidence here that the opposite relationship holds true. Tourism does not promote peace in a country, or serve as a check on violence.

Conclusion and Implications of the Analysis

The analysis carried out demonstrates some of the uses to which the GPI may be put for expanding our understanding of peace and our understanding of the causes of peace.

Some of the more notable findings are:

- 1 Peace is an important factor in economic growth.
- 2 Peace has spill-over effects across national borders.
- 3 Democracy can be a potent driver of peace, but only if accompanied by effective governance.
- 4 Economic wealth can be a potent driver of peace, but only if translated into the welfare of a nation in health and education, and international cooperation.

¹³ The male youth bulge hypothesis expects that youth bulges should provide greater opportunities for violence through the abundant supply of youths with low opportunity costs, and with an expectation that stronger motives for violence may arise as youth bulges are more likely to experience institutional crowding, in particular unemployment.

¹⁴ Urdal, Henrik. 2006. “A clash of generations? Youth bulges and political violence,” *International Studies Quarterly* 50 (3): 607-629.

THE STRUCTURE AND CAUSES OF PEACE

These are important findings, and they deserve further investigation and elaboration. The analysis presented in this section suggests some useful questions which the GPI data can now help answer. But the analysis also helps sketch the outline of a specific system of peace, or chain of relationships which seem to form a virtuous circle.¹⁵ Internal and external peace among the large, influential countries of the world will contribute to the overall peace in their regions, as well as contributing to economic growth nationally and regionally. The increase in economic resources can be translated into greater general welfare for the population. An important tool for doing this is effective governance¹⁶. This creates the political effectiveness for equitable economic improvement which will then drive further conflict resolution and advances in peace. This in turn fuels further economic growth at home as well as regionally, and the cycle begins again.

¹⁵ For related arguments see Russett, Bruce and John Oneal, 2001. *Triangulating Peace*. New York: Norton.

¹⁶ This can be simply stated as how responsive the government is to the interests of its constituents and society in general.

SOCIAL ATTITUDES THAT CREATE PEACE

The goal of the Institute for Economics and Peace is to further the understanding of what nurtures and sustains peace. While measures of peace and violence comprise the Global Peace Index, it is likely that there are aspects of countries' social and political culture, and possibly the economic culture, that may illuminate why nations are more or less peaceful. Attitude research that is conducted scientifically across nations can be a tool for understanding such cultural differences.

To examine how people's attitudes and beliefs in different nations may be related to their peacefulness, the Institute for Economics and Peace commissioned the Program on International Policy Attitudes (PIPA) at the University of Maryland to gather multi-national attitude research and correlate it with the Global Peace Index. Attitudinal differences between peaceful and less peaceful nations can help clarify the cultural mechanisms that may underpin the institutions and actions of nations that make them more or less peaceful.

Sources of Multi-National Public Opinion Research

Until the last 10 years, there was relatively little multi-national attitude research conducted on a worldwide basis. However, economic globalization has driven a need for market information, and market research or survey research organizations are now found in nearly all of the 150 largest nations as measured by the size of their economies. Public opinion and other attitude research have become a global phenomenon, with governments, academics, and policy centers interested in the views of the public in their own countries as well as in other countries. The circumstances created by economic

and informational globalization provide an opportunity to link the indicators of the GPI with attitude research from many nations. To carry out such an analysis, we identified a set of multi-national survey research programs, and the findings were correlated on a nation-by-nation basis to the 2008 GPI rankings. The criteria for selection of the public opinion research were the following:

- The studies should cover multiple countries and continents, not simply Europe or East Asia.
- The studies should employ relatively high methodological standards (probability samples) with clear documentation of the questions and the quantitative findings.
- The studies should be available as open-source research.

The following multi-national survey research programs met these criteria and were reviewed for items that might be related to peacefulness.

- WorldPublicOpinion.org (WPO)
- Pew Global Attitudes Program (PGAP)
- World Values Survey (WVS)
- BBC World Service Polls conducted by GlobeScan and PIPA (BBC)

Abbreviations have been used after the attitudinal findings so that the reader can identify the polling source. One item from Gallup International has also been included.

Attitudinal Themes Related to a Nation's Peacefulness

In the review of global survey research available in the open source literature, a variety of survey questions items were found to be related to a country's rankings on the Global Peace Index. Each of those reported

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below had statistically significant correlations between a nation's attitude score and its rank on the GPI. While it is possible that occasional "chance" findings can appear in such reviews, it is encouraging that the related items generally seem to fit into coherent themes. Such thematically related items that are replicated across different survey questions and different survey organizations build confidence that national public attitudes about these issues are in fact predictors of a nation's peacefulness.

Nationalism/Chauvinism

Nationalism is often reported to be a factor in international conflicts by historians, journalists, and social psychologists. A group of attitudes reflecting issues associated with nationalism and chauvinism were found in the multi-country studies to be related to countries' rank on the Global Peace Index. Nations where the public holds attitudes which emphasize the special value of their own culture, their own country's morality, and a need to protect their values against outsiders tend to be classified as not being peaceful. To phrase the findings in terms of peacefulness, people in countries rated *more peaceful* on the GPI tended to be:

- less likely to see their culture as superior (PGAP) $r = .497$
- more likely to see their country as having average morality in its foreign policy, rather than above or below average (WPO) $r = -.472$
- less likely to think that their way of life needs to be protected against foreign influence (PGAP) $r = .393$

A set of items related to national identity vs. identity as a global citizen, openness to others, and trust in others also seem

to be related to the theme of nationalism/ chauvinism.

- more likely to think it is important to understand others' preferences in building good human relationships (WVS) $r = -.469$

Active Civil Society/Respect for Human Rights

A free and engaged civil society in theory ought to be an effective way to reduce or manage internal conflict as well as of preventing external conflict. Safeguarding the rights of all citizens, including specifically the rights of ethnic or religious minorities, should be an important tool of a well-functioning government and this in turn should limit internal conflict.

A review of multi-national survey research shows that attitudes related to civil society and human rights have been polled relatively often. A substantial number of public opinion questions are correlated with a nation's peacefulness. Some of the questions are normative, i.e. they assess what people think should be done or what their preferences are in areas of governance or human rights; others measure a public's perceptions of the status of democratic practices and human rights in their country. These are clearly different types of questions and understanding the interaction of these normative beliefs and perceptions of one's political system is an issue that merits further attention.

Nations tend to be scored as *more peaceful* when their publics are:

- more likely to reject any use of torture, including against terrorists (WPO) $r = -.725$
- more likely to support leaders who take a cooperative and compromising approach (WVS) $r = -.676$

- more likely to say that the media in their country have a lot of freedom (WPO) $r = -.563$
- more likely to believe that women and men make equally good political leaders (PGAP) $r = -.442$
- less likely to believe that their government should be able to limit expression of ideas (WPO) $r = -.424$
- more likely to see their country as having a lot of respect for human rights (WVS) $r = -.417$

Support for Military Capacity and the Use of Force

Only a relatively small number of global polling items have been identified. This may seem surprising since there appears to be a very plausible relationship between conflict and attitudes about military capabilities or military actions. There have not yet been many questions polled in different regions of the world on issues related to the use of military force, the morality of force, the rationale for military budgets and military build-ups, and similar issues. On the following topics, people in countries ranked by the GPI as more peaceful were:

- more likely to favor an agreement to eliminate all nuclear weapons (WPO) $r = -.537$
- more likely to have negative feelings about al Qaeda (BBC) $r = .475$
- were likely to support military action in Iraq only if sanctioned by UN (Gallup International) $r = -.453$
- more likely to disagree with the need to use military force to maintain order in the world (PGAP) $r = .411$

Traditional Personal and Religious Values

Religious values are among the oldest human belief systems that can be documented. The relationship of religious values to peace and conflict is complex, despite the significance of peacefulness as a virtue in most religious systems.

Nations are more likely to be categorized as peaceful on the GPI when their citizens are:

- more likely to feel that politicians do not need to believe in God (WVS) $r = -.707$
- more likely to believe that good and evil are more contingent rather than absolute (WVS) $r = -.491$
- more likely to feel that it is not necessary to believe in God to be moral (PGAP) $r = -.486$

Economic Attitudes

A smaller number of items that correlated with nations' GPI rankings may form a cluster of issues related to economic attitudes and beliefs. Other researchers working on the GPI have shown that peacefulness is related to economic development and to the World Economic Forum's Global Competitiveness Index and the World Bank's Ease of Doing Business and Knowledge Economy Indices¹⁷.

People in nations with higher peace rankings are:

- more likely to say that anyone should be permitted to come to work in the country (WVS) $r = .465$
- less likely to say that globalization is growing too quickly ((BBC) $r = -.459$

This is a small number of attitude items and their characterization as reflecting economic attitudes will need further assessment.

¹⁷ The 2008 GPI correlates with those indices as follows:
 WEF Global Competitiveness Index $r = -.57063$
 World Bank Ease of Doing Business $r = 0.568693$
 World Bank Knowledge Economy Index $r = -.64599$

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However, since other elements of the GPI have identified economic variables as having a role in peacefulness, these attitudes may reflect how some related economic factors are represented psychologically.

What Citizens Think of Other Nations

For several years, the BBC World Service has polled 20 or more nations on which countries are perceived to be having a “mostly positive influence” or “mostly negative influence” in the world. This global polling question provides a different perspective from those above: the world public assesses other nations such as France, Britain, Japan, USA, Russia, China, Iran, and Israel in terms of their positive or negative influence in the world. These annual global evaluations produce considerable discussion in the policy community.

A striking finding for peacefulness is that the rankings of countries by the GPI and by the global public in terms of positive-negative influence correlate very strongly, $r = -.833$, more strongly than any of the other items tested. **It seems that peacefulness is an important part of the underlying concept that people around the world employ when they say that a country is having a positive or negative influence in the world.**

Some Attitudes Not Related to a Nation's Peacefulness

Across the four multi-national polling efforts, the Program on International Policy Attitudes reviewed a large number of items. There were some items that we anticipated would be related to peacefulness, but proved not to be when evaluated by means of the correlation analysis. Inferences from such null findings are not always clear because the items may not have been measuring

the “relevant” concepts that they seemed to us to be measuring, or because our theory may not have been correct. Nonetheless, documenting some of these non-findings may help fill in the picture of the attitudinal underpinnings of peacefulness. All of the measures below did not approach statistically significant correlations with the GPI.

Attitudes toward the UN

The United Nations was developed in part to maintain international peace and to provide a forum where differences between nations could be resolved. As nations invest some authority in the UN, they yield a small portion of autonomy and ability to act solely in their self-interest. When a conflict occurs, nations often call on the UN to resolve it and a peacekeeping function is a familiar role for the UN. For such reasons, it seemed plausible that more peaceful nations might favor investing more responsibility in the UN and strengthening it. However, it appears that all nations, peaceful or not, share fairly similar attitudes toward the UN.

Certain Attitudes Related to Democracy

As mentioned earlier it was found that publics favoring respect of human rights, civil society attributes, and democratic principles tended to live in more peaceful nations. It is interesting to note that certain attitudes related to well functioning democracy were not related to peacefulness, for example when the public of a nation felt that they could trust their government to do what is right or that the country was governed according to the will of the people.

This outcome is likely to be due in part to the fact that publics don't evaluate their own government very objectively. A number of studies have shown that the public in "more established" democracies do not necessarily give their own government high marks in serving the will of the people; those in countries which receive low ratings in democracy by human rights organizations often give their country higher grades in serving the will of the people.

Civilian Control of the Military

A topic that was anticipated to be related to peacefulness was civilian control of the military. It seems interesting and surprising that this concept is not statistically correlated with a nation's peacefulness. There was not a significant relationship to national peacefulness when a public felt that it is very or somewhat important for the military to be under the control of civilian leaders nor that the military being under control of civilian leaders described their country very or somewhat well.

Each of these groups of attitudes seems plausibly related to peacefulness, but was not found to be so empirically. The challenge of such null findings is that concepts and theory need to be sharpened.

Conclusion

This review of the relationship of global poll findings to rankings of nations by the Global Peace Index provides an encouraging start in understanding the attitudinal drivers of peaceful societies.

Drawing upon research conducted in the recent past to understand whether and how national attitudes are related to peacefulness has laid some initial groundwork. Many of

the relevant questions asked in global surveys have been examined. This approach has the limits of any review effort: questions have not been designed with the specific purpose of understanding what attitudes distinguish peaceful nations from those nations that are less peaceful, and the post-hoc method runs some risk of capitalizing on chance like other data mining techniques. Although this is somewhat mitigated by comparisons to other research initiatives that have found similar results.

Further research using specifically targeted questions which have been designed around peaceful attitudes or designed from a theory or conceptual framework of peace would further advance our understanding.

HOW TO DEVELOP AN INDEX OF POSITIVE PEACE

The concept of '*positive peace*' was first coined by Johan Galtung. '*Negative peace*' refers to the absence of war and violence, whereas positive peace refers to the presence of the conditions that eliminate the causes of violence and build peace. Here we discuss how elements of the Global Peace Index can prove to be useful in developing a methodology to measure positive peace.

Having established a ranking of nations by their peacefulness, the GPI makes it possible to analyse what factors are associated with rising or decreasing levels of peacefulness in the hope of understanding the structures, institutions and values that are needed to create peace.

Negative peace is defined as the absence of war, violence or destructive conflict. This definition of negative peace is very useful, as it allows peace to be measured and is a definition that most people can agree with. Indeed, it has been used by the Global Peace Index to form the definition of the measurement for the GPI.

The Global Peace Index has proved itself as a unique tool to statistically assess the peacefulness of nations and shed light on why nations are peaceful or not. The Index can also be correlated with other data sets, indexes and attitudinal surveys to uncover the potential drivers or causes of peace as has been outlined in previous sections of this report.

The indicators that are proposed in this section as potential measures of positive peace are not representing a finite list but rather are a set of determinants that have been evaluated so far through statistical association. Some indicators are more statistically relevant than

others and have also been taken from larger data samples. Many have been grouped using techniques such as Principal Factor Analysis and had various forms of regression analysis performed on them (including OLS). It is not the aim of this discussion to delve into why each of the indicators has been chosen, as their statistical relevance has been covered elsewhere.

Once the correlates of peace have been ascertained then there is a need to determine whether such correlations are a cause of peace, the product of peace or a virtuous cycle where the correlate and peace interact together to increase the quantum of both.

For the purposes of this discussion it is assumed that there is not necessarily a precedent condition, rather that peace and the selected correlation reinforce each other. A clear example of this is per capita income which is a measurement of the wealth of a society. It is generally agreed that business is the creator of wealth. In a war zone, most business cannot function; there needs to be a stop to the conflict before investment will take place, as illustrated by Figure 2. Similarly, if war breaks out in a country that has been relatively peaceful, the GDP will drop dramatically.

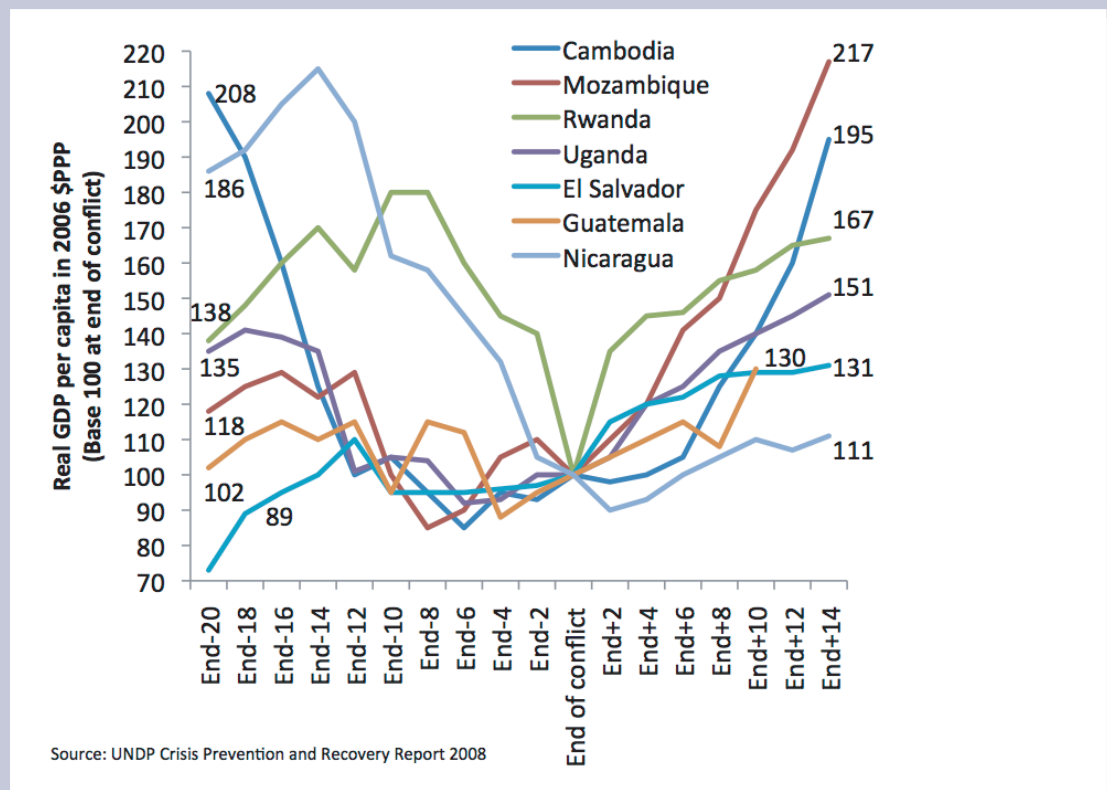


Figure 2: Levels of real GDP per capita for 7 countries experiencing civil war.

This demonstrates that peace is a causal or precedent factor in wealth generation. However, it can also be demonstrated that when living standards or per capita income decreases, violence will increase with it. Coinciding with the global economic crisis, in 2008 the world became less peaceful. It could be said that peace and wealth form a virtuous cycle. When employment is increasing and living standards are rising, members of the population are less likely to resort to violence as the opportunity afforded through development carries less risk than violent activity. On the other hand, when economic conditions decline individuals have less opportunity to achieve what they desire and are more likely to resort to violence. Additionally, loss of work can lead to an unsustainable life-style, anger and marginalisation which can in turn lead to a

choice of high risk strategies for survival or create the underlying conditions for organised violence. This can then lead to the emergence of unpalatable leaders who will then use the situation to further their own ends to the detriment of the overall society.

In our approach to measuring positive peace we aim to look into two different types of data: the first known as ‘**structural drivers of peace**’ is derived from correlations with other indices and data sets. The second type of data ‘**attitudinal drivers of peace**’ is extracted from attitudinal surveys. Within each of these categories we have analysed a number of different sources.

The *structural drivers of peace* have a high level of statistical accuracy and consist of samples that contain large numbers of countries and are derived from a wide variety

HOW TO DEVELOP AN INDEX OF POSITIVE PEACE

of sources. They have been further validated using statistical techniques such as regression analysis. The *attitudinal drivers of peace* are on the other hand sometimes based on smaller samples. Global attitude surveys are still in their infancy and as their popularity and breadth of coverage increases, a richer understanding of the social attitudes that are associated with peace will emerge.

Different drivers can have different levels of effectiveness. To determine the relative values of the different drivers is not easy. In developing an index of positive peace it will be required to allocate different weights to the different drivers. The weightings will be key in developing a strong index. Two methods could be adopted for assigning the weightings. The first is to weight according to the level of correlation with the GPI. This would mean that the drivers with the highest level of correlation would be seen as most important, however this does not account for whether a particular driver is more important than another. The second approach would be to create an expert panel that would use their considerable knowledge to select the drivers they consider the most reliable and adjudicate a weighting based on their collective reasoning. A combination of both methods could also be used.

Potential candidate indicators for selection are itemised below.

Structural Drivers of Peace

- Good relations with neighboring states
- Low levels of corruption
- Well functioning government
- High levels of per capita income

- High enrolment rate in primary
- Low child mortality rates
- Freedom of the press
- High extent of regional integration

Attitudinal Drivers of Peace

- Respect for human rights
- Belief in free speech
- Welcome high levels of co-operation both within the nation and externally
- Feel that it is not necessary to believe in God to be moral
- Less likely to believe that their society is superior
- Believe that they have control of their lives
- Believe in the limited use of the military and only when internationally sanctioned
- Friendliness or lack of hostility to foreigners

The Institute for Economics and Peace is aiming at developing an Index of Positive Peace. The results of such an index will highlight the difference between a nation's ranking in peace and its future potential for peace. It will also enable governments and civil society to understand what policies and actions they should be focusing on to improve their peacefulness. Over time, as trends emerge, it will be possible to determine the trajectory of nations thereby enhancing the international community's ability to act proactively in developing international policies as well as helping international investment decisions.

BEYOND GDP - MEASURING A NATION'S PROGRESS

The current economic crisis has driven home the shortcomings of using GDP growth as the central measure of a nation's success. One of the reasons for creating the Global Peace Index was that it is difficult to understand what we do not measure; therefore measuring peace was of vital importance. Additionally, if there are not adequate measurements then how can we know whether the actions we are taking are helping or hindering in the achievement of our goals. The value of peace should be measured in national accounts but peace is only one component of many trends that are vital to the measuring of progress.

Central to the generally acceptable view of progress is that the increase in a nation's GDP is the most significant measure of how well a society is progressing. Most governments measure themselves by it, as does the media and the opposition parties.

GDP is indeed important and the impact of falling GDP is reflected in the political instability within most nations. However,

it is used disproportionately to many other important factors. GDP is a short term measure. It can in fact be improved simply by increasing debt or selling assets to fund higher levels of expenditure. GDP is also a by-product of other factors and the health of these other factors will determine the outcome of long term GDP growth.

Let's consider the current economic crisis. Many of our leaders and public commentators have stated that it is a consequence of poor governance and greed. However, this overlooks two important factors. The first is the ever-increasing size of debt at government, corporate and individual levels. The second is the decreasing real wealth of the average American over the last decade¹⁸. It is impossible for the US to have an expanding consumer economy while the average consumer is becoming poorer. Any impacts to the US economy will have spill-over effects into other economies, as US GDP accounts for approximately 24% of global GDP.

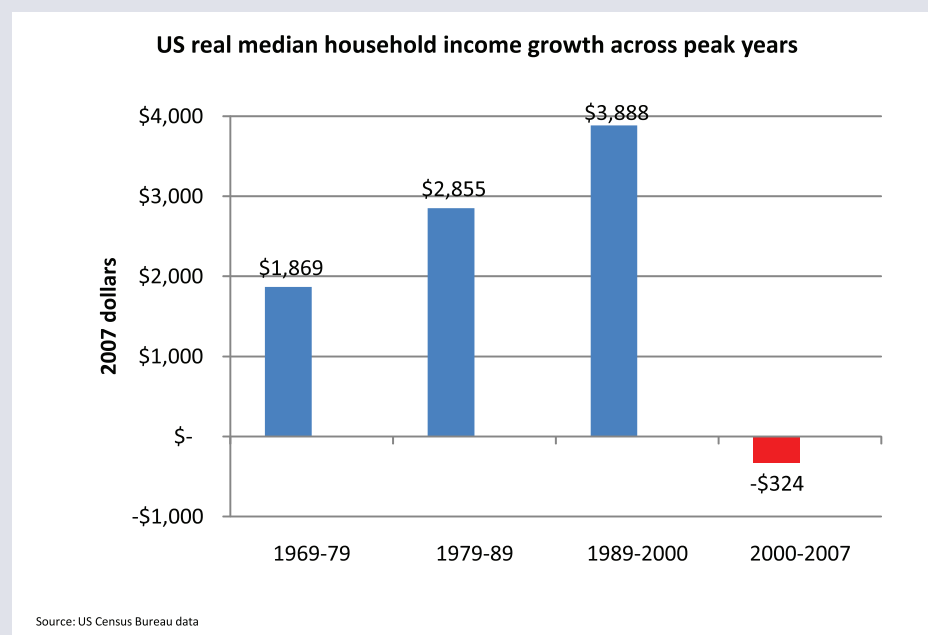


Figure 3: US real median household income growth, 1969-2007.

¹⁸ The US economy expanded over the 2000s, and working families were highly productive, as output per hour rose 18% from 2000 to 2007. But despite their contributions to the economy's growth, middle-income, working-age households - those headed by someone less than 65 - lost ground over these years. Their median income, after adjusting for inflation, fell \$2,000 between 2000 and 2007, from about \$58,500 to \$56,500 (2007 dollars) source: Economic Policy Institute (EPI), August 2008.

BEYOND GDP - MEASURING A NATION'S PROGRESS

If the gap between rich and poor widens further, how can the biggest consumer economy in the world ever fully recover and what is the long-term impact on exporting nations whose economic growth is dependent on strong exports to the American consumer? Would the US not have been better off had it included levels of debt and median household income into its measurements of societal progress?

The question therefore needs to be asked: *Is GDP the correct measurement to use in a future that will be very different from the past?* With the population of many Western nations decreasing, economic growth on a *per capita* basis could increase, yet GDP growth decrease. Japan is an excellent example of a nation that could benefit and lead change in measuring progress as its GDP growth becomes harder to reconcile with a declining population.

Factors which should be considered in measuring a country's progress, and have received only minor attention to date, include levels of debt, the well-being or happiness of the nation, the gap between rich and poor, the degree of peacefulness of the country and whether its natural resources are being depleted at an unsustainable rate.

One of the initiatives that governments, civil society and the media could embrace that would change our view on what policy decisions really matter is the OECD's 'Measuring the Progress of Societies' project.

In June 2007, the OECD, in collaboration with a number of other international organisations, hosted the second World Forum on "Statistics, Knowledge and Policy

- Measuring and Fostering the Progress of Societies". Some 1,200 selected invitees, from over 130 countries attended. They included Presidents, ministers, senior statisticians, civil society leaders, captains of industry, heads of foundations and renowned academics. The conference led to the Istanbul Declaration, signed by the European Commission, the Organisation of the Islamic Countries, the OECD, the United Nations, UNDP, UNICEF, UNESCO, the United Nations Fund for International Partnership, the World Bank, and several other organisations. It calls for action to identify what "progress" means in the 21st Century and to stimulate international debate, based on solid statistical data and indicators, on both global issues of societal progress and how societies compare. In particular, the Istanbul Declaration calls for actions to:

- Encourage communities to consider for themselves what "progress" means in the 21st Century.
- Share best practices on the measurement of societal progress and increase the awareness of the need to do so using sound and reliable methodologies.
- Stimulate international debate, based on solid statistical data and indicators, on both global issues of societal progress and comparisons of such progress.
- Encourage public debate to produce a broader understanding of our changing conditions, while highlighting areas of significant change or inadequate knowledge.

- Advocate investment in improving statistical capacities, with the aim of improving the availability of data and indicators that are needed to guide development programs, especially in the developing world and report on the progress toward international goals, such as the Millennium Development Goals.

World Forum participants felt that the world needs leadership in this area and established the Global Project on “Measuring the Progress of Societies”. Today the project is progressing well.

The French President Nicolas Sarkozy has established the “French Commission on measuring economic performance and social progress” chaired by Nobel Economist Joseph Stiglitz. The results of the commission’s work are expected to be released in late 2009 and will provide the first comprehensive framework for moving beyond GDP.

In many ways, we get what we measure and if we wish to achieve a higher level of societal progress our measures have to be much more than achieving strong growth in GDP.

As sustainability becomes central to managing our future we need to develop ways of assessing our success that take it into account along with other factors that are important to a society such as well-being, happiness and peace.

THE ECONOMIC VALUE OF GLOBAL PEACE

Summary

Peace is one of society's most treasured values yet there is very little research that attempts to measure the value of peace. To the best of our knowledge no one has tried to quantify what the value of peace would be worth to the global economy or alternatively to calculate its value to a business sector or industry. One of the underlying reasons is that without a specific definition, economists have found it difficult to measure and therefore to quantify. The value of peace can be understood and measured when peace is defined as "the absence of violence".

The Institute for Economics and Peace asked the Economists for Peace and Security (EPS)¹⁹ to:

- measure what would be the **additional growth in global GDP if the world was peaceful**;
- evaluate **what further studies** could be conducted to **understand the impact of improving peacefulness on business**.

EPS researchers calculated the effects of peace on global GDP in two areas: *static economic effect* and *dynamic peace dividend*. They concluded that the static economic effect of peace accounts for 4.4% of the global economy, which in 2007 would have been US\$2.4 trillion, while the dynamic peace dividend accounts for 8.7% of the global economy which is equivalent to a net gain of US\$4.8 trillion in 2007. Combining the two will yield the total economic effect of the cessation of violence.

For 2007, this total effect could have been, in foreign-exchange based nominal terms, as much as US\$7.2 trillion or US\$72 trillion over a ten year period²⁰.

These and other results of the analysis are presented in the pilot study "**Defining Peace Industries and Calculating the Potential Size of a Peace Gross World Product by Country and by Economic Sector**".²¹ The research was conducted by John Tepper-Marlin²² and Jurgen Brauer²³ for EPS. A condensed and somewhat simplified version of the pilot study is contained below.

For the purposes of the pilot study, the US was used as an example to show the likely effects of peace on sectors and subsectors of the economy. In estimating the increase in global GDP, a conservative and justifiable approach was taken which is supported by other research. The study does not look at the cost to global GDP of decreasing peacefulness; however it would be possible to extrapolate it using the same form of analysis.

The study does not attempt to create moral judgments around the use of violence. It is recognized that both military and security forces are necessary to contain violence, however some societies have lower levels of violence and therefore gain a higher peace dividend which then equates into economic advantages and social well-being.

It is interesting to note that in spite of an apparent abundance of studies on the impact of violence on business, such studies are highly selective and pertain for the most part to terror, airlines, and tourism. Subsequent effects on secondary industries are rarely studied. There is a need to increase both the breadth and the scope of these types of studies so that they include as many forms of violence as possible.

A clear example of how peace unleashes suppressed economic activity is capital investment. Increasing peace creates a safer

¹⁹ www.epsusa.org

²⁰ The gross world product for 2007 was about US\$54.7 trillion.

²¹ The full text of the pilot study report is available from www.economicsandpeace.org

²² Until March 2009, John Tepper Marlin, PhD, was Principal, City Economist, New York City. With the conclusion of his participation in the study he became Senior Economist at the Joint Economic Commission, United States Congress, Washington, DC. He also is Adjunct Professor at the Stern School of Business, New York University, New York.

²³ Jurgen Brauer, PhD, is Professor of Economics, James M. Hull College of Business, Augusta State University, Augusta, GA, USA. He is co-editor of The Economics of Peace and Security Journal and co-editor of the Studies in Defense and Peace Economics book series with Routledge, London, UK.

environment for investment than otherwise would be the case. This stimulates investment and reduces risk, thereby stimulating growth and higher living standards. But this, in turn, makes investing in peace more critical. Thus, a virtuous cycle between peace and prosperity can emerge.

The World Economic Forum's Business Competitiveness Index and the World Bank's Ease of Doing Business Index's strong correlation with the GPI underpins the value of peace to the global economy. Thus, the researchers have based dynamic projections of the amount of GDP apportioned to peace on the GPI itself as a reasonable first approach to take. The GPI weights internal peace at 60% and external peace at 40% but even though the average across countries matches the GPI weights, drastic differences among countries emerge. For a number of states, internal peace generates 80% or more of the overall peace dividend: some examples are Cambodia, Guatemala, Haiti, Honduras, Jamaica, Kenya, Latvia, Mauritania, and Trinidad and Tobago. For other states, less than half of the dynamic peace dividend would come from internal peace: some of these countries are Australia, Canada, Denmark, Iceland, Japan, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom. In some cases this is much smaller than would be expected.

The impact of peace on various business sectors can be understood by analyzing the percentage of the economy that is accounted for by the three sectors, agriculture, industry and services. It is then possible to allocate the value of the peace dividend to each of these sectors. It is further possible to analyze the sub sectors within these sectors such as forestry or fisheries within agriculture and again calculate the dynamic peace dividend for each

of these sub sectors. This would help to guide governments and investors on where to invest in countries whose peacefulness is improving.

The US accounts were used as an illustrative example due to the accuracy and availability of the data. In 2007 the US GDP was \$13.8 trillion. Calculations, which are conservative, place the dynamic peace dividend for the United States at US\$1.14 trillion with US\$0.579 trillion from internal peace and US\$0.564 trillion from external peace.

“Defining Peace Industries and Calculating the Potential Size of a Peace Gross World Product by Country and by Economic Sector” – A Synopsis

Violence interferes with a society's ability to fulfil its aspirations and dreams, whether they are measured in terms of human happiness or economics. Peace can be seen as a lubricant that allows a society to get along with the things that really matter. Violence negatively impacts many aspects of life such as education, health, and personal safety and thereby impinges upon many essential functions such as personal productivity, commerce and trade, economic development and growth, human well-being and subjective happiness. Business leaders would make different decisions if they knew, even approximately, the current cost of violence and the extent of business opportunities forgone by continuous violence. In some cases violence is so bad that entire states are largely unfit for business.²⁴

This study distinguishes between economic activity that is violent as opposed to that which is criminal. The researchers were not interested in estimating a non-criminal gross world product (GWP) but in estimating a peace-based GWP as distinct from a violence-based GWP.

²⁴ For convenience, we henceforth employ the term violence without indicating each time that we include in this the credible threat of violence or of defending against perceived, implied, threatened, or actual violence.

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The study does not argue that it is feasible to eliminate violence or that military forces and violence-related law and order functions are or will become unnecessary; it does argue that societies have the choice to spend money on conflict-transformation and on peace creating activities or not to.

After quantifying the benefits for each nation and economic sector it becomes clear that with few exceptions businesses, their shareholders, executives, employees, suppliers, customers, and the communities in which they operate, have a considerable stake in peace.

The Stockholm Peace Research Institute (SIPRI) estimates that the world military expenditure as a share of Gross World Product (GWP) was 2.5% in 2007.²⁵ Thus, only a minority of businesses have a direct stake in war. If this number is adjusted for the typical underreporting of military expenditure and for the economic activity involved in violent activities such as the prosecution of war, criminal violence, civil war, political repression, piracy, and other violent activities, it can be argued that the combined effect can be conservatively estimated at 4.4% or more of GWP²⁶. The mere reallocation of economic activity from violence to peace would shift this 4.4% from violence related industries to peace industries but would not, by itself, add to the overall economic pie. This is referred to as the Static Peace Dividend (SPD) effect, meaning that GWP itself remains at first unchanged (static). Although some industries would decline precipitously e.g., military aircraft manufacture, others would decline only slightly e.g., sport and hunting firearms manufacture, by far the largest part of the manufacture of firearms, and still others

would probably see no decline in economic activity at all e.g., a law firm doing business in criminal and civil law might merely see less business in its violent crime case load but more business in its corporate law cases as economic activity shifts.

Beyond shifting resources from one sector of the economy to another, lies the realization that by suppressing economic activity, violence suppresses GWP below what otherwise it could have been. For example, some studies of the economic effects of terror suggest that GWP might have been up to 11% higher in the absence of terrorist events. If violence ceases and peace is obtained, otherwise idle, underused, or misdirected labor and capital resources can be liberated and enter into the economy in productive ways. This study refers to this as the dynamic peace dividend. When combined, the static and the dynamic effects account for the total economic effect of the cessation of violence and the utopia of peace. **For 2007, this total effect could have been, in foreign-exchange based nominal terms, as much as US\$7.2 trillion.** One-third of that would have come from the static reallocation of resources but a net gain of about US\$4.8 trillion, or 8.7%, over the actual 2007 gross world product of about US\$54.7 trillion could have been realized from the dynamic effects of peace.

The concepts of peace gross world product, and static and dynamic peace dividends

A growing number of economists, members of civil society, and even public officials have taken issue with an uncritical use of gross domestic product (GDP) data as a measure of human well-being. Rather than mere production, throughput, and income, for

²⁵ SIPRI (2008, p. 175).

²⁶ For the USA, for example, US Department of Defense outlays in 2008 understate overall national defense-related outlays by at least 78%. This is so, in part, because some military-related spending occurs through the Department of Energy (e.g., military-nuclear activities) and other departments, in part because some legacy costs of past military readiness and activity are budgeted for the Department of Veterans Affairs, and in part because a properly apportioned share of the interest payment due on the national debt (the cumulative annual budget deficits) should be attributed to military activity. For 2008, these adjustments alone would bring military expenditure as a percentage of US GDP to 7.3% rather than to the widely reported 4.1%, where the later is based solely on US Department of Defense outlays (see Brauer, 2007; 2009).

example, alternative measures have aimed at measuring consumption, environmental sustainability, and happiness.²⁷ In a similar vein, this study asks what portion of GDP may be attributable to violence. This includes not only the obvious instance of weapons manufacture, but also the institutions devoted to responding to violence, which consume resources that could otherwise be used for food, shelter, and personal care. The study arrived at a method to estimate how much violence decreases productive activity. To appreciate how this task was approached a simple hypothetical four-person economy is explained in terms of the economic impact of violence. The persons are:

- A farmer (F) who produces tangible goods.
- A military officer (M) who patrols the perimeter of the state to protect F's fields from external threat.
- A thief (T) who threatens F's and M's unguarded residences left vulnerable to predation during the workday.
- A police officer (P) who is in charge of preventing T from succeeding with theft.

In this economy, it may be said that two persons produce protection services (M and P), one person produces tangible goods (F), and one person produces disservices (T). The survival of all four depends solely on the product of F. Suppose that T becomes a farmer as well so that the economy now has two farmers, F1 and F2. Evidently, the need for P's services ceases and s/he may become farmer F3. On the assumption that all are equally productive, GDP can be tripled on account of internal peace. Alternatively, the inhabitants could enjoy more leisure and live off the produce of F1. With external peace, M can

also become a farmer (F4) and the economy or time for leisure could be larger still.

In real economies, the ratio of peace to violence-based economic activity is not a 1 to 3 ratio but is illustrative of the concept of suppressed GDP.

Violence and peace industries

Violence industries are defined as the beneficiaries of war, terror, and other forms of violence. These industries include military goods manufacturers and suppliers to military bases. Along with other industries that benefit from conflict and fear, such as security guards, alarm systems manufacturers, gun manufacturers, other weapons manufacturers, logistics specialists, detective and threat-assessment firms, manufacturers of survival goods such as dried food, gas masks, etc. Even political risk analysts, would be included in the violence industries. Peace industries are beneficiaries of peace. Peace industries do better during peace which is defined as decreasing levels of violence. In other words they receive the peace dividend. War and violence-dependent industries and firms do better during times of violence, such as wars. Peace and violence variables affect business variables, but the effect depends on the nature of the business.

Substitution effects catch some of the production that is displaced by violent industries. However, substitution imposes losses. From the perspective of orthodox economics, if buyers' first choice cannot be had there must be a loss by switching to the second-best option. Spending on the violent sector thus displaces spending on peace industries. Also, avoidance and defensive costs are incurred in a violent environment. Moving to safer neighborhoods

27 For a listing and discussion of some alternative measures, see, e.g., <http://www.beyond-gdp.eu>. On consumption, see Summer and Heston's (1995) SLpop measure.

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is an avoidance cost. Private security guards, fences, and alarm systems are defensive costs. These industries may be misread as peace industries but they are, in part, a reflection of violence. They thrive when threats rise.

Assets and income

GDP is a flow measure of income generated from assets. GDP could be increased any year by using up assets, e.g., paying people an income to cut down every tree in a country, but this reduces the stock of wealth from which future income is derived. The crux of the matter lies in asset building, and therefore the economic crux of violence lies in destroying assets or preventing asset use, or preventing asset maintenance or preventing asset build-up. If a farmer in Colombia decides not to invest in irrigation because of the threat of confiscation, appropriation, destruction, etc., his/her income, and thus GDP, will be permanently reduced. In contrast, peace industries build income-generating assets. Violence industries either prevent this or help erect avoidance and defensive assets and thereby misdirect economic resources. Thus, it is likely that peace brings not only static effects of reallocating resources from violence to peace but brings dynamic effects by injecting resources previously held hostage to violence into the economy. On account of peace itself, the economic pie grows. However, although income is necessary, it is not sufficient for human well-being and happiness. At some point, income is sufficiently high for people to substitute pleasure and leisure for income-generating work. Thus, any peace dividend may well be taken not in the form of opportunities for more work hours and increased incomes but in the form of more leisure. To focus on GDP even if it be a peace GDP, may only be part of the story.

Economic effects of violence on specific business activities and sectors

It is important to illustrate how violence affects specific business *activities* such as trade or foreign direct investment, and specific business *sectors* such as insurance or tourism so as to better understand what the peace dividend would be to various business sectors. The object is not to attempt a comprehensive literature review but merely to gain a sense of the order of magnitude of the effects of violence on business. The main finding of the study is that on the whole the literature or studies that have been done to date are far too selective and are overly focused on some forms of violence such as terror attacks or specific industries such as tourism. There is a need for further studies to broaden the base of research.

Calculating the Peace Dividend to Industry

Relatively little research has been done on the effects of violence on business. Most of the studies that do exist are related to terrorism and some of the research is summarised below. The UN Global Compact conducted a survey of its members in 2008 and asked a series of questions; three of them pertained to peace. When asked if they thought that the size of their markets increased with peacefulness 80% of respondents said yes; when asked if they thought that their costs decreased with peacefulness 79% of respondents said yes. However, only 13% of respondents knew about any information on the peacefulness of the countries that they operated in.

Commercial aviation. The effects of terrorist threats on commercial aviation are well known. Direct costs include ever more stringent security measures. Indirect

and usually unmeasured costs include increased inconvenience and waiting times for customers at airports and airlines or the use of other less beneficial forms of transport. These may have a higher incidence of casualties such as - car travel. Well-documented substitution effects also conclude that more effective anti-terror measures “push” terror organizations into alternative locations or types of terror. For example, instead of attacking commercial passenger aircraft, attacks are directed against subway and railway systems e.g., London and Madrid.

Insurance. Insurance may have mixed interests, as the demand for the insurance industry may seem to increase with violence. However, it is important to note that premiums do increase along with an increase in risk (impacting demand) and the number of insurance payouts increases with increasing violence (increasing costs for the industry). Furthermore, an industry or region may eventually become uninsurable, thereby eliminating premiums altogether. The long-term interest of the insurance industry is in peace because peace lengthens both the asset base and the time horizons of individuals and businesses and therefore payment of premiums for life insurance, theft, injury, and retirement-related products. The perfect profit scenario for insurance is one in which violence levels fall over a long period of time.

Tourism. The effect of war and terror on the tourism industry is fairly well studied. For example, Neumayer (2004) statistically tests for “the impact of various forms of political violence on tourism. The models show strong evidence that human rights violations, conflict, and other politically motivated violent events negatively affect

tourist arrivals. In a dynamic model, even if autocratic regimes do not resort to violence, they have lower numbers of tourist arrivals than more democratic regimes. Results also show evidence for intraregional, negative spill-over, and cross-regional substitution effects.” For example, after September 11, 2001, tourist arrivals in Bali, Indonesia, dropped. This adversely affected not only the official economy but also businesses in the informal economy, such as street vendors who depend on tourists for their livelihoods. When Bali itself became a target of a terror attack on October 12, 2002, tourist arrivals fell drastically, and those tourists that did come stayed for shorter periods and spent less, creating income losses for vendors, and inducing “greater stress and insecurity, while increasing crime”²⁸. A good number of such studies are available but, to our knowledge, have not been systematically reviewed to gain more than anecdotal, case-by-case, incident-by-incident insight into the specific economic damage done.²⁹

International tourism can be replaced by domestic tourism as happened within the United States following September 11, 2001 when many US citizens stayed in the United States and thereby benefited US tourism sites. However, Marriott Hotels sales flattened out in 2001 and turned down in 2002. This suggests that comparing hotel sales with levels of violence in each country could be a fruitful area of industry-specific research. We would expect increased violence to reduce sales, increase costs, and reduce profits. Even when sales revert to trend, the “dip” in the intervening time period amounts to a permanent loss for the firm and the industry.

²⁸ See Baker and Coulter (2007).

²⁹ For, e.g., Bandara (1997); Buesa, Valino, Heijs, Baumert, and Gonzalez Gomez (2007).

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Results of static and dynamic analysis

Given the general assumptions that have been mentioned, the study computed in nominal 2007 terms a static peace dividend of US\$2.4 trillion, or 4.4% of actual GWP. Of the total sum, US\$1.0 trillion would be contributed by industry and the remaining US\$1.4 trillion by the service sector. This evidently presents opportunities for business to compete over shares of the reallocation of resources from violence to peace.

In addition to the static effect, a dynamic peace dividend effect was computed at US\$4.7 trillion, or a 9% addition to actual GWP. Of this amount, US\$2.8 trillion would accrue to peace internal to countries and the remaining US\$1.9 trillion to peace between and among them (see Annex II).

Method and details

Figures 4 and 5 show on the vertical axes Global Peace Index (GPI) scores for 140 countries and on the horizontal axes, foreign-exchange and purchasing-power parity measures of per capita GDP. The lower the GPI score is, the more peaceful the country. Thus, the superimposed downward-sloping linear trend line shows an association to the effect that more peaceful countries on average also obtain higher per capita GDP or income levels. The causal effects run both ways: peace makes capital investment safer than otherwise would be the case, and it thereby stimulates growth and higher living standards. But this, in turn, makes investing in peace more critical. Thus, a virtuous cycle between peace and prosperity can emerge. The World Economic Forum's Business Competitiveness Index and the World Bank's Ease of Doing Business Index correlate with the GPI. This demonstrates that there is a relationship between an improved business environment and improving peace. Thus, basing our dynamic projections of PGDP (Peace GDP) on the GPI itself seems to be a reasonable first approach to take.

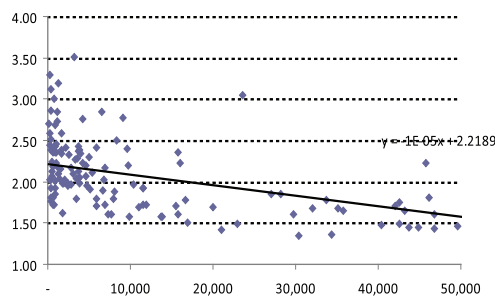


Figure 4: GPI 2008 (y-axis) vs 2007 per capita fx-based GDP (x-axis) for 140 countries, with trend line.

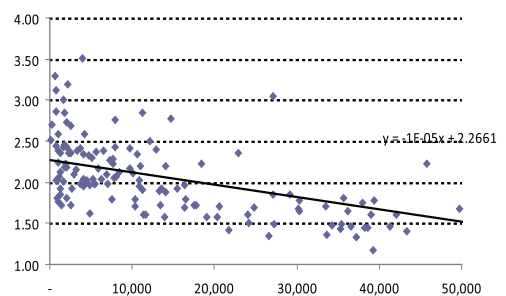


Figure 5: GPI 2008 (y-axis) vs 2007 per capita ppp-based GDP (x-axis) for 140 countries, with trend line.

Country analysis

Although the research is primarily interested in devising and implementing a feasible computational method to arrive at global numbers, for data reasons both the static and the dynamic peace dividend analysis are set up on a country-by-country basis, as is the Global Peace Index. For example, the dynamic peace dividend calculations are based on the GPI which, for 2008, used weights of 60% for internal peace and 40% for external peace. When averaged across countries, EPS computations arrive at virtually the same allocation. But even though the average across countries matches the GPI weights, drastic differences among countries emerge. For a number of states, internal peace generates 80% or more of the overall peace dividend, some examples are Cambodia, Guatemala, Haiti, Honduras, Jamaica, Kenya, Latvia, Mauritania, and Trinidad and Tobago. This is larger, sometimes much larger, than would have been expected on account of these states' internal GPI alone. For example, for Cambodia, the internal GPI is 65.3% of the combined GPI. But almost 81% of the dynamic peace dividend would be due to internal peace. For other states, less than half of the dynamic peace dividend would come from internal peace, such as Australia, Canada, Denmark, Iceland, Japan, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom. In some cases this is much smaller than would be expected from their internal GPI. For example, Iceland's internal GPI is 44.7% of its combined GPI. But of the dynamic economic gains of peace, only 27.4% would accrue due to internal peace. See Annex II for a table of the dynamic peace dividend by country.

Sector analysis

In this section, the study shows how a peace GWP would benefit particular economic sectors. This is done in two ways. The first is a top-level analysis conducted by splitting GDP into its primary, secondary, and tertiary sectors, that is, agriculture, industry, and services. This is a relatively simple exercise. The second way looks at subsectors, that is, sectors within agriculture, such as forestry or fisheries and sectors within industry, such as chemicals or scientific instrument building and sectors in services, such as the financial or tourism. Because of the underlying data requirements, this second way is more demanding.

Top-level analysis

Worldwide, in terms of 2007 US dollars, agriculture accounts for 3.8% of GWP, industry for 29.8%, and services for 66.4%. The GWP figures and the sector percentages are taken from the IMF *World Economic Outlook* and World Bank online data services, and are available by country.³⁰ Although agriculture can engender severe violence, it is not itself a violence industry. Therefore a shift from violence to peace will reallocate resources within and between industry and services only. Agriculture will benefit from the dynamic peace dividend: as economies grow on account of peace, it becomes safe again to invest in land, livestock, irrigation, farming tools, etc., and so the sector would be expected to benefit and grow. In contrast, the violence portion of industry and services would be converted to peace. The static peace dividend for these sectors is about US\$1.0 trillion for industry and US\$1.4 trillion for services worldwide as calculated for the year 2007.

³⁰ Certain data gaps have been filled by recourse to the CIA World Factbook.

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Sector	(US\$ m)	(%)
Agriculture	\$ 167,907.1	1.2%
Mining	\$ 275,012.2	2.0%
Utilities	\$ 281,424.2	2.0%
Construction	\$ 610,841.9	4.4%
Manufacturing	\$ 1,616,825.8	11.7%
Wholesale trade	\$ 805,319.0	5.8%
Retail trade	\$ 892,522.3	6.5%
Transportation and warehousing	\$ 407,187.9	2.9%
Information	\$ 586,269.2	4.2%
Finance and insurance	\$ 1,091,415.6	7.9%
Real estate, rental, leasing	\$ 1,719,801.8	12.5%
Professional, scientific, technical services	\$ 1,007,780.5	7.3%
Management of companies and enterprises	\$ 271,251.2	2.0%
Administrative and waste management services	\$ 415,113.0	3.0%
Educational services	\$ 129,531.4	0.9%
Health care and social assistance	\$ 957,440.4	6.9%
Arts, entertainment, recreation	\$ 133,846.7	1.0%
Accommodation and food services	\$ 379,488.5	2.7%
Other services, except government	\$ 315,633.7	2.3%
Government	\$ 1,742,926.2	12.6%
Total Final Uses (GDP)	\$ 13,807,538.6	100.0%

Table 2: United States Economic Sectors (nominal US\$ million, 2007).

On a country-by-country basis, we look at the purchasing power parity (ppp)-based calculations and, for example, find that of the static peace dividend of \$6.9 billion available to Venezuela, \$3.8 billion (55.1%) would accrue to industry and the remainder \$3.1 billion (44.9 %) to the services sector. In terms of the dynamic peace dividend, the gains projected for each country also are allocated across sectors. For example, we learn that the expected dynamic peace dividend for Canada is a US\$1.336 trillion. We know that the respective shares of agriculture, industry, and services are 2.0%, 28.4%, and 69.6% so that Canada could expect a dynamic peace dividend of \$26.7 billion for agriculture, \$379.4 billion for industry, and \$929.9 billion for services.

Subsector analysis

The US was chosen as an example to illustrate how peace would affect subsectors of the economy. We used data from the Bureau of Economic Analysis, US Department of Commerce website.³¹ We processed the data from the Bureau of Economic Analysis for the United States actual GDP in 2007. The nominal dollar value of US GDP was US\$13.8 trillion. The agricultural sector consists of farms, forestry, fishing, and related activities and accounted for 1.2 % of US GDP in 2007. Mining, utilities, construction, and the manufacturing industries accounted for 20.2 % of the economy, and the remainder are services, 78.6 %.³²

It was calculated that the total available dynamic peace dividend to the United States is US\$1.14 trillion, with US\$0.579 trillion stemming from internal peace and US\$0.564 trillion from external peace. This was allocated to the sector percentages in Table 2.

For example, because the wholesale trade sector accounted for 5.8% of US GDP, this percentage is allocated to the dynamic peace dividend and says that the wholesale trade sector could stand to gain US\$33.76 billion from internal peace and another US\$32.89 billion from external peace. This is a total of US\$66.66 billion per year in 2007 US dollars, an 8.3% increase over its 2007 business volume of US\$805 billion.

We have allocated every sector and subsector with the same 8.3% over its current business volume. This is because we do not have information on the violence/peace percentages within each sector or subsector. In time, these may become available as country-by-country analysis reveals actual or estimated percentages. For example, it is a fair guess that the dollar volume devoted to private sector legal services regarding criminal violence is higher in the United States than it is in New Zealand. But whether or not a shift from violence to peace would merely reallocate dollars within private sector legal services, say for more business formation and corporate law, or out of legal services into other sectors is difficult to say at this time.

Country-sector analysis

In regard to the static peace dividend analysis, based on readily available World Bank and supplementary data, it is easy to split GDP into the main economic sectors of agriculture, industry, and services. Under the assumption that all of agriculture is treated as a peace industry, some country-specific surprises emerge. As an example, in Angola, industry accounts for 75.9% of the combined value of industry and services. Yet only 58.6% of the apportioned GDP would accrue to industry, a 17.3 percentage point difference from what

31 http://www.bea.gov/industry/gdpbyind_data.htm.

32 As an example, the mining subsector (NAICS code 21) within industry is itself sub-divided into oil and gas extraction (code 211), mining, except oil and gas (code 212), and support activities for mining (code 213). These amounted to US\$164.6 billion, US\$45.3 billion, and US\$65.0 billion, respectively. Similar subdivisions are made in the other industry and service top-level categories, so that the overall detail available is considerable.

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might be expected. In other words, the service sector would stand to gain disproportionately from a reallocation of current GDP from violence to peace. Other states where this difference in favor of the service sector exceeds 15 percentage points are Iraq and

Qatar. Conversely, states where industry would benefit disproportionately relative to the service sector are Cuba, Ethiopia, France, Greece, Lebanon, Rwanda, and the United States of America.

Sector	Internal pGDP (US\$ bn)	External pGDP (US\$ bn)	Total pGDP (US\$ bn)
Agriculture	\$7.04	\$6.86	\$13.90
Mining	\$11.53	\$11.23	\$22.76
Utilities	\$11.80	\$11.49	\$23.29
Construction	\$25.61	\$24.95	\$50.56
Manufacturing	\$67.79	\$66.04	\$133.83
Wholesale trade	\$33.76	\$32.89	\$66.66
Retail trade	\$37.42	\$36.46	\$73.88
Transportation and warehousing	\$17.07	\$16.63	\$33.70
Information	\$24.58	\$23.95	\$48.53
Finance and insurance	\$45.76	\$44.58	\$90.34
Real estate, rental, leasing	\$72.11	\$70.25	\$142.35
Professional, scientific, technical services	\$42.25	\$41.16	\$83.42
Management of companies and enterprises	\$11.37	\$11.08	\$22.45
Administrative and waste management services	\$17.40	\$16.96	\$34.36
Educational services	\$5.43	\$5.29	\$10.72
Health care and social assistance	\$40.14	\$39.11	\$79.25
Arts, entertainment, recreation	\$5.61	\$5.47	\$11.08
Accommodation and food services	\$15.91	\$15.50	\$31.41
Other services, except government	\$13.23	\$12.89	\$26.13
Government	\$73.08	\$71.19	\$144.26
Total Final Uses (GDP)	\$578.90	\$563.97	\$1,142.87

Table 3: Breakdown by sectors in the US economy of the benefits from the dynamic peace dividend

Conclusion

The study did not analyse more than the top-level economic sectors and subsectors such as agriculture and its subsectors such as forestry or fisheries. Further research to better understand the impact on specific industries may yield highly interesting results as well as helping business to better understand some of its business drivers.

A limitation that is worthy of mention is military expenditure; although numbers for all states are available, it is probably under-measured. Other violence-related variables are inadequately measured such as the cost of civil war, violent crime, administration of state's justice systems, and so on. The very study of the economic causes, costs, and consequences of violence is not much advanced and is addressed in very disparate ways in the available literature. There are no universal numbers available, let alone recorded to a uniform standard. The pilot study addressed this limitation by using coefficients in computations that were regarded as plausible, yet conservative.

The short-term case for war and violence is easily made based on some threat or grievance or both. The long-term business case for peace therefore needs to be made as strongly and broadly as possible. Intuitively, most businesses know that they have a stake in peace. But the general stake in peace that the majority of businesses have can be overwhelmed by a narrow range of profit opportunities, competitive pressures or in a political process which gets caught up in the rhetoric of the moment.

ANNEX I - Countries Support to UN Peacekeeping Operations

Financial support of peacekeeping operations is vital to the functioning of this important instrument of peace. Table 4 ranks countries according to the percentage of their outstanding contributions versus annual assessment to the budget of the current peacekeeping missions. The table aims to simply provide a snapshot and poses no judgment on countries as there are different reasons why UN Member States may be delayed in the payment of their UN dues, including national budget timelines.

The concept of peacekeeping is not specifically mentioned in the Charter of the United Nations. It evolved as a pragmatic solution in the early years of the Organization when it became apparent that some of the Charter provisions relating to the maintenance of international peace and security could not be implemented as envisaged.

United Nations peacekeeping is an instrument developed as a way to help countries torn by conflict create the necessary conditions for lasting peace. The first UN peacekeeping mission was established in 1948, when the Security Council authorized the deployment of UN military observers to the Middle East to monitor the Armistice Agreement between Israel and its Arab neighbours. Since then, there have been a total of 63 UN peacekeeping operations around the world.

UN peacekeeping aided the transition to democratic rule in Namibia and supported similar transitions in El Salvador, Nicaragua and Guatemala. UN peacekeepers oversaw the withdrawal of foreign forces from Cambodia, and conducted the 1993 elections that put the Khmer Rouge out of business. A UN peacekeeping mission led the way to a peace that has brought sustained economic

growth in Mozambique, and helped it become a symbol of hope in Africa.

Today's peacekeepers undertake a wide variety of tasks, from helping to build sustainable institutions of governance, to human rights monitoring, to security sector reform, to the disarmament, demobilization and reintegration of former combatants. The peacekeeping budget for the period from 1 July 2007 to 30 June 2008 was approximately US\$6.8 billion. This represents about 0.5% of global military spending which is estimated at US\$1,232 billion in 2006.

All United Nations Member States share the costs of United Nations peacekeeping operations. The General Assembly apportions these expenses based on a special scale of assessments applicable to peacekeeping. This scale takes into account the relative economic wealth of Member States, with the permanent members of the Security Council required to pay a larger share because of their special responsibility for the maintenance of international peace and security³³.

Many countries have also voluntarily made additional resources available to support United Nations peacekeeping efforts on a non-reimbursable basis in the form of transportation, supplies, personnel and financial contributions above and beyond their assessed share of peacekeeping costs.

It is important to note that we have only calculated outstanding amounts to current peacekeeping missions budgets and not to political missions nor to capital funds. The table includes all the 144 countries in the 2009 GPI with the exception of Taiwan (not a UN Member State) and is based on the "Status of Contributions as at 31 December 2007"³⁴.

³³ General Assembly Resolution 55/235 "Scale of assessments for the apportionment of the expenses of United Nations peacekeeping operations" details assessment rates for the financing of peacekeeping operations.

³⁴ ST/ADM/SER.B/727

GPI 2009 Countries Ranked According to their Contributions to UN Peacekeeping Missions					
COUNTRY		COUNTRY		COUNTRY	
1	Australia	50	Angola	99	Greece
1	Austria	51	North Korea	100	Nigeria
1	Canada	52	El Salvador	101	Ecuador
1	Finland	53	Luxembourg	102	Nicaragua
1	Georgia	54	Madagascar	103	Mongolia
1	Ireland	55	Oman	104	Lebanon
1	Israel	56	Hungary	105	United Arab Emirates
1	Italy	57	India	106	Sudan
1	Macedonia	58	Latvia	107	Chile
1	Serbia	59	Democratic Republic of Congo	108	Bhutan
1	Singapore	60	Croatia	109	Morocco
1	Slovenia	61	Moldova	110	Saudi Arabia
1	South Africa	62	Botswana	111	Bahrain
1	Sweden	63	Burkina Faso	112	Costa Rica
1	United Kingdom	64	Jamaica	113	Sri Lanka
16	Czech Republic	65	China	114	Uzbekistan
17	New Zealand	66	Kuwait	115	Cameroon
18	Denmark	67	Uruguay	116	Honduras
19	Lithuania	68	France	117	Laos
20	Romania	69	Cuba	118	Zimbabwe
21	Bulgaria	70	Albania	119	Malawi
22	Netherlands	71	United States of America	120	Afghanistan
23	Slovakia	72	Jordan	121	Rwanda
24	Iceland	73	Mauritania	122	Equatorial Guinea
25	Turkey	74	Portugal	123	Haiti
26	South Korea	75	Bangladesh	124	Peru
27	Russia	76	Belgium	125	Vietnam
28	Zambia	77	Venezuela	126	Kenya
29	Brazil	78	Iraq	127	Senegal
30	Azerbaijan	79	Malaysia	128	Chad
31	Kazakhstan	80	Guyana	129	Yemen
32	Thailand	81	Ghana	130	Cambodia
33	Colombia	82	Japan	131	Argentina
34	Germany	83	Spain	132	Myanmar
35	Namibia	84	Tanzania	133	Papua New Guinea
36	Poland	85	Tunisia	134	Dominican Republic
37	Indonesia	86	Algeria	135	Ethiopia
38	Norway	87	Philippines	136	Mali
39	Estonia	88	Qatar	137	Bolivia
40	Turkmenistan	89	Guatemala	138	Syria
41	Pakistan	90	Montenegro	139	Paraguay
42	Mexico	91	Iran	140	Uganda
43	Cyprus	92	Panama	141	Somalia
44	Bosnia & Herzegovina	93	Ukraine	142	Central African Republic
45	Mozambique	94	Nepal	143	Belarus
46	Switzerland	95	Gabon		
47	Burundi	96	Egypt		
48	Cote d' Ivoire	97	Trinidad and Tobago		
49	Libya	98	Congo (Brazzaville)		

Table 4: Countries with no outstanding contributions are ranked at the top, in alphabetical order.

ANNEX II - Dynamic Peace Dividend by Country

Country	GPI 2008 Rank	Internal Peace GDP dividend	External Peace GDP dividend
Afghanistan	137	\$ 3.37	\$ 1.32
Albania	79	\$ 2.19	\$ 1.02
Algeria	112	\$ 16.64	\$ 6.55
Angola	110	\$ 8.12	\$ 4.67
Argentina	56	\$ 19.42	\$ 10.37
Australia	27	\$ 32.88	\$ 33.36
Austria	10	\$ 14.05	\$ 9.24
Azerbaijan	101	\$ 4.70	\$ 2.80
Bahrain	74	\$ 2.92	\$ 1.33
Bangladesh	86	\$ 9.61	\$ 2.67
Belarus	94	\$ 6.55	\$ 2.49
Belgium	15	\$ 18.55	\$ 10.78
Bhutan	26	\$ 2.01	\$ 1.18
Bolivia	78	\$ 2.64	\$ 0.93
Bosnia and Herzegovina	66	\$ 2.42	\$ 1.37
Botswana	46	\$ 2.16	\$ 0.60
Brazil	90	\$ 105.74	\$ 29.17
Bulgaria	57	\$ 4.36	\$ 2.56
Burkina Faso	81	\$ 1.85	\$ 0.64
Cambodia	91	\$ 2.38	\$ 0.57
Cameroon	92	\$ 3.94	\$ 1.16
Canada	11	\$ 23.68	\$ 46.29
Central African Republic	134	\$ 2.33	\$ 0.92
Chad	135	\$ 2.71	\$ 1.15
Chile	19	\$ 10.11	\$ 4.37
China	67	\$ 187.42	\$ 87.04
Colombia	130	\$ 27.87	\$ 9.17
Congo (Brazzaville)	117	\$ 2.45	\$ 0.71
Congo, Democratic Republic of	128	\$ 3.22	\$ 0.99
Costa Rica	34	\$ 2.93	\$ 1.29
Côte d'Ivoire	122	\$ 4.42	\$ 1.21
Croatia	60	\$ 5.26	\$ 3.27
Cuba	62	\$ 6.32	\$ 2.78
Cyprus	52	\$ 2.66	\$ 1.61
Czech Republic	17	\$ 8.35	\$ 5.40
Denmark	2	\$ 6.71	\$ 8.67

Country	GPI 2008 Rank	Internal Peace GDP dividend	External Peace GDP dividend
Dominican Republic	82	\$ 5.80	\$ 1.99
Ecuador	100	\$ 7.21	\$ 2.23
Egypt	69	\$ 12.90	\$ 4.81
El Salvador	89	\$ 3.90	\$ 1.07
Equatorial Guinea	64	\$ 2.52	\$ 0.70
Estonia	35	\$ 1.89	\$ 1.74
Ethiopia	121	\$ 3.91	\$ 1.86
Finland	8	\$ 8.62	\$ 7.39
France	36	\$ 96.16	\$ 79.65
Gabon	55	\$ 2.20	\$ 0.69
Germany	14	\$ 88.07	\$ 70.96
Ghana	40	\$ 2.04	\$ 0.98
Greece	54	\$ 22.40	\$ 11.53
Guatemala	103	\$ 6.21	\$ 1.28
Haiti	109	\$ 2.17	\$ 0.54
Honduras	104	\$ 3.17	\$ 0.69
Hong Kong	23	\$ 10.39	\$ 8.04
Hungary	18	\$ 8.88	\$ 3.77
Iceland	1	\$ 0.29	\$ 0.77
India	107	\$ 87.47	\$ 46.46
Indonesia	68	\$ 33.93	\$ 14.17
Iran	105	\$ 29.87	\$ 12.20
Iraq	140	\$ 18.41	\$ 6.35
Ireland	6	\$ 10.41	\$ 5.71
Israel	136	\$ 21.31	\$ 14.59
Italy	28	\$ 92.47	\$ 44.93
Jamaica	96	\$ 2.92	\$ 0.47
Japan	5	\$ 32.31	\$ 114.80
Jordan	65	\$ 2.45	\$ 1.43
Kazakhstan	72	\$ 10.88	\$ 4.73
Kenya	119	\$ 5.47	\$ 1.35
Kuwait	45	\$ 9.13	\$ 4.51
Laos	51	\$ 1.28	\$ 0.39
Latvia	39	\$ 3.67	\$ 0.47
Lebanon	132	\$ 5.37	\$ 2.56
Libya	61	\$ 6.82	\$ 3.96
Lithuania	41	\$ 3.89	\$ 1.85
Luxembourg	9	\$ 3.09	\$ 1.59
Macedonia	87	\$ 1.95	\$ 0.83

Country	GPI 2008 Rank	Internal Peace GDP dividend	External Peace GDP dividend
Madagascar	43	\$ 1.64	\$ 0.43
Malawi	73	\$ 1.39	\$ 0.55
Malaysia	38	\$ 12.19	\$ 7.18
Mali	99	\$ 2.11	\$ 0.66
Mauritania	120	\$ 1.83	\$ 0.43
Mexico	93	\$ 86.85	\$ 23.01
Moldova	83	\$ 1.53	\$ 0.62
Mongolia	88	\$ 1.58	\$ 0.55
Morocco	63	\$ 7.65	\$ 3.94
Mozambique	50	\$ 1.62	\$ 0.62
Myanmar	126	\$ 3.00	\$ 1.93
Namibia	77	\$ 1.78	\$ 0.84
Netherlands	22	\$ 31.49	\$ 23.88
New Zealand	4	\$ 3.87	\$ 4.02
Nicaragua	59	\$ 1.58	\$ 0.48
Nigeria	129	\$ 23.33	\$ 8.17
North Korea	133	\$ 5.53	\$ 2.79
Norway	3	\$ 7.16	\$ 11.57
Oman	25	\$ 3.23	\$ 1.98
Pakistan	127	\$ 19.56	\$ 8.63
Panama	48	\$ 2.83	\$ 0.95
Papua New Guinea	95	\$ 2.00	\$ 0.54
Paraguay	70	\$ 2.51	\$ 0.68
Peru	80	\$ 12.14	\$ 3.70
Philippines	113	\$ 17.97	\$ 6.46
Poland	31	\$ 21.63	\$ 14.87
Portugal	7	\$ 9.34	\$ 4.88
Qatar	33	\$ 6.33	\$ 2.54
Romania	24	\$ 10.59	\$ 4.77
Russia	131	\$ 124.05	\$ 57.25
Rwanda	76	\$ 1.21	\$ 0.75
Saudi Arabia	108	\$ 36.79	\$ 17.75
Senegal	71	\$ 2.34	\$ 0.80
Serbia	85	\$ 5.34	\$ 2.69
Singapore	29	\$ 9.35	\$ 6.97
Slovakia	20	\$ 4.73	\$ 3.17
Slovenia	16	\$ 2.56	\$ 2.22
Somalia	139	\$ 2.19	\$ 1.00
South Africa	116	\$ 30.86	\$ 12.30

Country	GPI 2008 Rank	Internal Peace GDP dividend	External Peace GDP dividend
South Korea	32	\$ 41.12	\$ 32.83
Spain	30	\$ 68.26	\$ 34.35
Sri Lanka	125	\$ 6.36	\$ 2.13
Sudan	138	\$ 9.42	\$ 4.33
Sweden	13	\$ 11.03	\$ 16.62
Switzerland	12	\$ 12.87	\$ 13.75
Syria	75	\$ 4.75	\$ 2.75
Taiwan	44	\$ 22.34	\$ 14.76
Tanzania	58	\$ 2.78	\$ 0.99
Thailand	118	\$ 28.90	\$ 8.83
Trinidad and Tobago	98	\$ 4.28	\$ 0.80
Tunisia	47	\$ 4.34	\$ 1.24
Turkey	115	\$ 59.36	\$ 28.85
Turkmenistan	102	\$ 5.03	\$ 1.28
Uganda	114	\$ 2.84	\$ 1.26
Ukraine	84	\$ 14.88	\$ 5.86
United Arab Emirates	42	\$ 14.22	\$ 5.72
United Kingdom	49	\$ 86.44	\$ 114.42
United States	97	\$ 578.90	\$ 563.97
Uruguay	21	\$ 2.61	\$ 0.81
Uzbekistan	111	\$ 4.55	\$ 1.41
Venezuela	123	\$ 27.29	\$ 10.10
Vietnam	37	\$ 5.82	\$ 3.19
Yemen	106	\$ 4.32	\$ 1.56
Zambia	53	\$ 2.21	\$ 0.56
Zimbabwe	124	\$ 1.99	\$ 0.73
TOTAL 140 countries		2,785.46	1,903.38

END NOTES

¹ The use of spatial econometrics to model economic growth is relatively new, but is an expanding and important area of analysis and is widely recognized by professional economists (for a survey see Abreu, De Groot, and Florax, 2004; for a recent application, see Garrett, Wagner, and Wheelock 2005). Spatial econometrics is an analytical technique that allows for the estimation of effects that are associated with the relative position or distance between the objects under analysis. In the present case the focus is on the geographic proximity of the GPI countries that are being analyzed. This is especially useful because it can capture the flow-on effects from direct (contiguous) neighbors, as well as from indirect neighbors, such as a neighbor's neighbor. This is important, for example, if there are regional clusters around a large and robust economy, such as Asian states that are affected by their proximity to China, although they may not be direct neighbors. Good examples might be Thailand or South Korea, which are closely linked to China's economy, but do not share a land border with China.

The choice of a spatial model to analyze the relationship between peace and growth is appropriate for a number of good reasons, and is also consistent with the state of the art in economics. We have analyzed the peace-growth connection using different types of spatial models (spatial lag and spatial error), which account for different technical ways in which geographic proximity might influence the analysis, and we have used more traditional analytical tools, especially "ordinary least squares" (OLS) regression with a lagged dependent variable to test the robustness of the findings. The results show that peace, when measured with the GPI, appears to have a very solid and consistently

positive effect on economic performance across the countries of the world. Economic growth is measured by the annual % change in Gross Domestic Product (GDP).

¹¹ Although the statistical analysis can only point to correlations within the data, these driver variables have been discussed in previous GPI reports, and their potential as causes of peace or conflict has been elaborated there and by the GPI Panel of Experts. Thus there is high confidence that these factors are causally important for peace, although the hypothesized relationships are not discussed in detail here.

It was highlighted earlier that econometric techniques like OLS can separate the independent impact of each factor in our economic growth model. This accounts for the effects of the other factors. Thus it is especially useful for assessing which are the most potent drivers of peace when dealing with a large range of potentially important variables. Table 1 shows the results of OLS analysis of the relationship between the 2008 GPI and the more statistically significant drivers. Less relevant or reliable drivers were excluded from the final model that is presented.

In order to compare the actual impact of each of the drivers on peace, it is appropriate to use the effects of a 1-standard deviation change in each driver. The "standard deviation" is a widely used statistic which assesses the degree of variability around a factor's average value, and it is useful for comparing effects across variables because it provides a way to fairly include an understanding of how much each variable actually varies in the data that it is being used in. The 1-standard deviation effects are found in the fifth column from the left in Table 1.

NOTES

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