



**HAL**  
open science

## A Hard Look at the Costs of Peace

Jacques Fontanel, Michael Ward

► **To cite this version:**

Jacques Fontanel, Michael Ward. A Hard Look at the Costs of Peace. World Economics, 2002, 3 (2). hal-03226751

**HAL Id: hal-03226751**

<https://hal.univ-grenoble-alpes.fr/hal-03226751v1>

Submitted on 15 May 2021

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## A Hard Look at the Costs of Peace

Jacques Fontanel & Michael Ward

World Economics 3(2)

April-June 2002

The end of the Cold War not only helps to end the destructive arms race, but also profoundly alters the major international balances. The United States was able to reap huge peace dividends, thanks to the acceleration of economic productivity, and Washington became the greatest economic and military power. However, for some regions (Africa) or countries (Russia), the human cost of the globalisation process has been very high, while the sovereignty of peoples has been indirectly questioned. Peace is both necessary and the conditions for its sustainable realisation requires major investments.

La fin de la guerre froide favorise l'extinction de la course aux armements destructrice, mais elle modifie aussi profondément les grands équilibres internationaux. Les Etats-Unis ont pu ainsi recevoir d'énormes dividendes de la paix, grâce à l'accélération de la productivité économique, et Washington est devenu la plus grande puissance économique et militaire. Cependant, pour certaines régions (Afrique) ou pays (Russie), le coût humain du processus de mondialisation s'est avéré très élevé, en même temps que les questions de souveraineté des peuples a été indirectement remise en question. La paix est à la fois nécessaire et les conditions de sa réalisation pérenne supposent d'importants investissements.

Peace, disarmament, conversion, sovereignty, USA, leadership  
Paix, désarmement, conversion, souveraineté, USA, leadership

In 1988, Paul Kennedy surveyed the then current landscape of global politics and declared that what goes up must come down. In particular, f-great economic powers such as USA would be ineluctably seduced by an excessive and decadent investment in military might. As a result, le forecast a certain decline of American economics and military hegemony. Instead, it was the Soviet empire that quickly crumbled shortly thereafter. Ands cracks began to form in the foundations of putative Japanese economic invincibility, cracks that have expanded substantially since then. US military and economic mighty, far from waning, sere each enhanced significantly. The former was dramatically demonstrated by the stunning, rapid, and largely unpredicted victory in the Gulf war of 1990-91; the later by an explosive burst of productivity that expanded the breadth and scope of the post-industrial economy.

Indeed, the decade of the 1990s witnessed an enormous burst in new productivity in exactly the place it was least anticipated by Kennedy's flawed analysis. Instead of being replaced as a hegemonic power, the United States entered 21th century stronger than ever. While old enemies were primarily concerned with effecting a transition from failed socialism to hybrid capitalism, and as a result were devoting fewer resources to their military, the USA was able to effect a substantial reduction in its military sending programme, despite the fact that it continues to spend substantially more ion defence than most other countries. One plausible explanation is that the end of the cold war brought with it an enormous dividend- namely the acceleration of economic productivity- and that the largest beneficiary of that has quite naturally been the largest economic power, the United States.

### **The new economy and military leadership of the USA**

It is important to take these twin developments into account, for their impact on the recent past has been very powerful. Yet, when historian historians write the chronology of the world politics in the 20<sup>th</sup> century, the story will be dominated by three themes: military conflicts among states, economic development via capitalism, and the growth of political and economic institutions within and among states? Obviously, these themes

are intertwined. The end of Cold War has important consequences.

One has been the embellishment of the US position as the pre-eminent global military power. Despite the fact that this was in reality the goal of the now defunct arms race, ironically it has been achieved in part as a result of disarmament that followed the end of the cold war. Not only did the Soviet Union disappear as a global military power, but also the US was able to slightly reduce its military spending while at the same time maintaining its lead through its advantageous technological position. Thus, militarily the hegemonic position of the US has been augmented by the peace dividend.

A second important consequence has been economic. Massive restructuring has brought with it enormous costs as well as opportunities. For Russia, the transformation from an inefficient command economy to a liberated market system (albeit with a troublesome legacy) presented itself as a series of deep crises for Russia and in part for its partners in the West (Aganbeguyan, 1994) In other words, these crises represented huge opportunities for transformation, but bore with them enormous costs and potential downside risks. Thus, the disinvestment and the reinvestment went hand in glove to produce a kind of peace investment that resulted directly from the necessities brought about the end of the Cold War (Fontanel, Borissova, Ward, 1995). The most recent "Russian economic crisis of 1998 has been resolved by growth in Russian energy exports, but the economic is still struggling to find a stable growth path, with a huge human costs (Skharatan, Fontanel, 1998).

At the same time, US and Chinese economic power advanced at unprecedented rates. The Chinese economy has grown at rates of 10% per annum since the beginning of economic reform in 1978, has surpassed Japan as the fastest growing economy in Asia, and has had a stable currency; none of these trends have been affected by Asia's several economic Crisis. Us economy output was about \$5,000 billion when Berlin wall fell; today it is worth about \$10,000 billion (Lau, 2001). Most important has been increased productivity, much of it fuelled by the information economy, which in turn helped to generate sufficient taxes to eliminate budget deficits and bolster the capital accounts?? Moreover, globalisation could not have proceeded as quickly apace in the presence of the Cold War. The

collapse of the USSR hastened the acceleration of local as well as global economic activity.

### **The question of sovereignty**

These changes fundamentally upset the uneasy equilibrium that characterised the international political economy during the latter half of the 20<sup>th</sup> century. The modern international system grew largely as an outcome of the creation of modern states. Empires had of course ruled different parts of the globe for centuries. But as a way of ending the Thirty Years War – a horrific ethno-religious conflict between Catholics and Protestants- the Treaty of Westphalia established the principle of sovereignty, which correlated the legitimacy of governance with geography. In so doing, the notion of any supreme authority over the rulers of states was largely abandoned. This geographically-define sovereignty created and reinforced the power of the executive decision-makers of states and it created a system in which were largely all-powerful within their borders.

Neither the United Nations, not the Holy Roman Emperor, for example, could fundamentally constrain the actions of states, without the acquiescence of the states themselves. But states, through organised internally, can support anarchy. While all states were theoretically sovereign, they were not equal in other respects. Some states were richer, others more militarily aggressive, still others fiercely inward looking. If some states were able to conquer other states and incorporate them, why wouldn't such a system evolve into the types of empires that it replaced? The principle of sovereignty served to protect states from the interferences of other states. And, as such, most states developed strong interests in promoting and extolling the principle of sovereignty; it means that they were free to do as they wished inside their borders. Thus sovereignty as a principle introduced a great deal of predictability into diplomacy.

The French Revolution changed the rules of legitimacy and sovereignty. Prior to the revolution, most countries around the globe were ruled by a longstanding line of monarchs, sometimes propagated by heredity, but often established or renewed by force. The revolution suggested that legitimacy was to be established not necessarily by peaceful elections, but by drawing on popular will and popular enthusiasm for the policies of the state. The success of the French modern state in creating a

large, modern and legitimate national organisation for governing its territory provided a huge challenge for the various political organisations that inhabited Europe at the time. In part as a result of France's demonstrated power, nationalist governments would result in political reorganization into what is now called Germany, Italy, Russia, and Austria-Hungary. France's huge success not only simulated organisation change in Europe, it also threatened the stability of Westphalia system and resulted in a violent European conflict as Great Britain, Prussia and Russia and Austria-Hungary were fearful of impending French hegemony in Europe. The resolution of that conflict led to the Concert of Europe, which amplified the notion of sovereignty even further. Sovereignty was reaffirmed, but dominance was viewed as unacceptable, and collective security was to be established by the use of military balance of power that would deter or overwhelm any potential violators. Thus, the organisation of the modern interstate system is one that underscores sovereignty, so much so that it enables nations to come together in war to protect it. A recent example of course was the Gulf War in 1991 fought to overturn the Iraqi invasion of Kuwait.

But what does the matter? Security dilemma is produced by an anarchic international system. This dilemma suggests that defensive behaviour such as maintaining large military establishments or designing or deploying new military technologies will be threatening even if such behaviour has benign intentions. The security dilemma is based in the well-known tendency – some would argue obligation – of leaders to view their own actions as prudent and defensive in character, but to perceive similar actions by others as threatening and offensive, even expansionist. As a result of this longstanding dilemma, two basic strategies have been envisioned and adopted.

One strategy develops overwhelming force, to either deter or decisively defeat potential belligerents. This strategy was responsible most recently for the US nuclear policy during the cold war. In another form it could be conceived of as the establishment of hegemony or empire. Yet the community has largely rejected this form as unacceptable. Indeed, if the major risk of hegemony is empire, then it too violates the basic mechanism of the western state system. The second major strategy is the implementation of substantial constraints and disincentives to the creation or maintenance of the so-called

vicious cycle of international conflict that results from the security dilemma. These elements may be traced back to imaginative ideas that emerged in 18<sup>th</sup> century liberal philosophy especially those of Kant. Three organisations or institutions systematically and symbiotically enhance the absence of war among modern nations: democracy, commerce, and international organisations (Fontanel, 1995).

Ironically, the end of the cold war brought disequilibrium to the global political economy. As safe as Americans felt about this newfound stability, others around the globe began to worry whether a hegemonic future would fundamentally exclude them and lead to fundamental instabilities, as it had in the past. The tragedy of the terrorist attack on the World Trade Center and Pentagon on September 11, 2001, would puncture, but not eliminate these worries.

### **The military power of the USA**

During the cold war, global military spending rose above \$1 trillion level on the mid-1980s. This was a spike and it had fallen about 60% by 1996 as a result of considerable disarmament and demobilisation, following the end of the cold war. However, current levels have been growing by about two per cent per annum since 1987 largely owing to rising spending in North Africa, Asia and Latin America.

The military expenditures of the US were about \$363 billion in 1989 and the projected spending (excluding war costs in Afghanistan) for 2002 rests at \$343 billion, still more \$20 billion less than the height of the cold war. To American politician and citizen used to an upward budget ratchet to government spending in general and military spending in particular, these numbers present themselves as substantial reductions in military spending. To others around the world, these numbers present a troubling trend. Despite the fact that pre-September 11 US military spending was below 1994 levels, the US military budget dwarfs by a factor of six that of its competitor, Russia. Indeed the seven countries targeted by the Pentagon as potential enemies (Cuba, Iran, Iraq, Libya, North Korea, Sudan and Syria) spend a combined total on defence that is more than twenty times smaller than US military spending. Even adding Russia and China into the mix, still leaves the US spending twice as much? According to SIPRI database on military

expenditures, the US spends almost 40 % of the global total? At the time of writing, it is clear that the US spending will be augmented by at least \$30 billion annually in the near term.

The United States enjoys a crushing military supremacy today, in particular in the field of research and development applied to the military sector, despite its substantial reduction in level of spending. Globally, in 1998 spending on military R&D reached \$60 billion (38 billion in the USA, 49 billion for NATO and 53 billion for all OECD countries). This reduction has come to an end. The US decided to increase its spending on R&D, in particular relating to a missile defence system? Even with a 25M% decline, the resources devoted to this aspect of US military policy are substantial. Some have argued that the crowding effect of military R&D will be detrimental to innovation in the private sector, so reductions should benefit private sector innovations.

However, it seems clear that there is greater synergy among these sectors and that the boundaries between them are purposely blurred by funding aimed at stimulating and exploiting civilian innovation by bringing to it sufficient resources so that it can be brought into the military arena cheaply and quickly. Computers, networking and telecommunications are all good examples of areas in which miniaturisation was undertaken in part to meet defence requirement, but really adapted initially from the civilian sector with government/military funding? These technology transfers are sometimes serendipitous, but generally are predicated on a strategy priority that seizes on technological and commercial opportunities, as in the case of the unmanned surveillance aircraft, which eventually became fairly widespread and in smaller quantities armed.

Indeed US military research and development has focused on transformational technologies that take care advantage of (as well as initially fund) advances in civilian electronics and information technologies. Reduced by about 40% from all time highs, about \$27 billion is projected for US military R&D in 2002. Most recent estimates suggest that the US has about 60% of the global military R&D and dwarfs its nearest competitor in this arena, France, which itself spends about one third of the European total on military R&D. That said, it is still only about 1% of the US military budget. Again, especially to Europeans, these numbers seem troubling for their size; to Americans they seem reassuring in their overall decline. It is the classic issue of



whether to be concerned about the size of the part, or about who is getting the biggest piece of it. Indeed, one US senator penned in 1999 an essay about the “threat” to US military R&D in which he noted:

*The armed Forces now risk losing one off their premier advantages, a technological edge. Past decision to counter numerically superior potential enemies with technological innovations have given the Nation the most formidable military in the world. But declining budgets combined with the legacy of the Cold War that pervades force structure and the R&D enterprise is degrading our ability to remain dominant in the technology of warfare... Military R&D must undergo an innovation revolution to maintain our technological dominance (Lieberman, 1999).*

However it is clear that the transformation of US forces is underway. Recent public revelations of some of the integration of electronics, avionics and satellite guidance provide a glimpse of this idea. The Global Hawk unmanned surveillance aircraft has a range of 14,000 nautical miles and prior to its crash in December 2001 proved to be especially useful to US and allied military commanders on the field of Afghanistan. But the Global Hawk is one of the sizeable number of similar, but much smaller unmanned aircraft, some of which are now armed. It seems clear that only the US is capable of mounting and stimulating such a recent programme (through its roots come from Israeli IDF initiatives). However, small hobby based versions of some of these aircraft are now publicly available for purchase over the Internet. An in early January 2002, Indian air defences shot down an unmanned Pakistani surveillance aircraft, demonstrating the diffusion of these revolutionary technologies.

Strategically, these conditions have changes the US policy. In particular, the absence of a nuclear threat renders a nuclear strategy largely devoid of immediate traction. The de-emphasis on nuclear strategy clearly facilitated the repeat nuclear force reductions of the past decade, as well as fuelled concerns of nuclear defence against a rogue state or agent with a missile guided chemical or biological weapons. Currently the US and Russia each have approximately 1,100-1,200 deployed ICBMs (including SLBMs and Heavy Bombers) down almost 45% from the levels in 1994 as a result of the START treaty reductions. At its height there were about 70,000 nuclear warheads in the world (1986); today, for example, the USA holds approximately 6,000. Thus, nuclear weapons stockpiles have been drastically

pruned. Doubtless the world is a safer place for it. However, this too has generated considerable disagreement between the US on the one hand and Europeans and Asians on the other. While the US sees this as a reason to withdraw from the 1972 ABM treaty and to begin anew with a missile defence system, Europeans, Russians and Asians see a disequilibrium in these changing arrangements, a disequilibrium which is viewed as threatening, even if these threats can be defused.

### **Arms race and strategic equilibrium**

Philip John Noël-Baker, a distinguished professor of international relations, UK Member of Parliament (Labour), Olympic medallist (Silver) and Nobel Laureate (1959) was among the first to write about arms race as threats for peace (Noël-Baker, P.J. (1926; 1958). Another Quaker who also served in France with Friends Ambulance Unit in World War I described the same dynamics in his own work on arms race. Lewis Fry Robertson was best known for his work on weather prediction, but developed a mathematical framework for evaluating the escalation involved in arms race using differential equations (Richardson, 1960). Basically, he showed that arms races are comprised of three major factors (1) a competition in military expenditures, (2) the economic consequences of these expenditures and (3) the basic underlying hostility or grievances between the two competitors. Richardson showed that arms races would stabilise only if the fatigue and expense could outweigh the underlying hostility and sensitivity of one country's expenditures to another's. The major starting point and implication was the presumption that arms races were one of the major causes of war.

While it is clear that the old arms race is over, many have already warned of the resurgence of another, intensified arms race. If we follow Richardson's invocation to look empirically at the problem, it is evident that there is very little reactivity in terms of lock-step competitive arms budgeting, nor is there a substantial economic burden to new levels of military spending given the generally enhanced economic productivity across most of the parts of the globe. Neither are the old enmities between East and West, particularly between Russia and America, as easy to fan afire as many thought. Indeed, Russia's calm and principal disagreement with the US notification of its withdrawal from the

1972 ABM treaty, seems very far from the predictions of a trenchant Russia rearmament that were made only a few months earlier.

The end of the cold war quickly swept away the assumptions on which major military procurement decisions had previously been based. However, this did not leave defence planning in total limbo. In spite of the downturn in world military spending, there are many plans for the construction of new weapon systems. Across the globe new cycles of weapon acquisitions will be required, and while arms exports and imports are continuing to fall, some growth can be seen. Russian exports are growing at a healthy pace (about 20% in 2000) as it continues to sell weapons to an expanding Chinese army, among others? In the USA, the initial contract for the new generation fighter bombers has been awarded to Lockheed-Martin and will amount to just under \$18 billion. In France, the Rafale, which started in 1987 and will continue production into the foreseeable future (2004) will cost \$7 billion to \$8 billion in R&D. European governments, separately or together, are also looking at the requirements for a new jet aircraft for force protection similar to the JSF, which is planned for delivery by 2015. Indeed most of the new missile development and research is based on NATO countries, with Russia having abandoned this field almost entirely. The main point is that weapon system planners are still quite busy, and the resources that many countries will devote to military spending in the near future are substantial.

Despite the continued use of more traditional weapon systems, indeed their advancement and increasing sophistication, it may be that completely new technologies will transform not only how war is fought in the future, but also how peace is maintained as well. New weapon systems may be founded on information technologies, the infrastructure for which present even higher entry barriers than aircraft. As a result, smaller numbers of enterprises will control the production of these information laden new, weapons technologies, including, for example, cryptography. Further, those controlling these new technologies may gain even greater power over their putative enemies, as well as their allies. In any case, it is certain that there is substantial concentration of the production of weapon systems, at the same time that there is a wider and more expansive diffusion of them across the globe. It should also be remembered that for most of the part,

international commerce in these technologies falls outside the realm of normal trade relations as nations begin to use a wider swath of previously civilian technologies for national security, bringing under the guise of national security high technology trade.

This is likely to strengthen the commercial success of enterprises that are already dominant in electronics, avionics, software and telecommunications. These enterprises will be the major economic beneficiaries of future military spending around the world, in the same way that shipbuilding industry, to take one example, was in an earlier epoch. Whether American domination of these industries will continue is, however, an open question as the entry x-costs for new technologies are obviously lower than for older technologies, especially as these items become more labour intensive and highly qualified, technical labour becomes more labour intensive and highly qualified, technical labour becomes widely available in parts of the world where it heretofore was largely absent or not mobile among commercial enterprises (Smith, and al., 1987). Indian and Chinese software engineers leap to mind as prime examples of this new reality.

So it is clear that we are in an area in which disarmament, demobilisation and reinvestment will characterise military policy more than arms races. Having jettisoned the arms race, we should not expect a future in which military costs are eliminated. Disarmament and demobilisation will not necessarily further reduce military expenditures, since in the one hand destruction of weapons stockpiles may incur substantial costs and, on the other hand, even remaining military stockpiles will either wear out or be consumed and as a result will need to be replenished and renovated, if not reinvented on a rather continuous basis? Indeed by retiring some weapons systems, such as many of the US nuclear attack submarines built in the 1960s, this may in fact engender greater costs as increased strategic requirements are imposed on replacement technologies. At the same time, economies of scale effects for smaller militaries may offset some of the costs efficiencies for smaller numbers of systems.

In short, the past decade provides ample evidence of massive economic, political and strategic changes, each in part a result of the end of the Cold War and the associated arms race. Yet the process of disarmament, demobilisation, and disengagement is temporary, caused by the failure of a security

system to endure. The same may be said of armament. Often disarmament comes only after a conflict. In the past, this was after a violent war, but more recently after a war that was described as cold, rather than hot. But new weapons can help to create new strategic contexts in which the process of disarmament is replaced by one of armament.

### **Peace, Security, democracy and poverty**

Today we face a dangerous situation in which we find new weapon systems that can modify the status quo. The possibly state-sponsored terrorist attacks on the USA in September 2001 illustrate that threats have not been eliminated to peace, and that security systems must evolve to meet new challenges, rather than addressing absent ones (Fontanel, 2002). Whatever the ultimate source of the Anthrax episodes, it seems clear that ignoring non-state actors in the military realms has had disastrous consequences. At the same time, the attacks served to stimulate a new tone to dialogue among important players in the global security regime, including the USA, China, Russia, France, Germany, the UK, Spain, Israel, Pakistan and India. Many potential problems still remain, yet the end of 2001 brought with it a renewed commitment to a cooperative security realm, and while it heightened the security concerns in many parts of the world, it also served to extinguish the last flames of the Cold War with it, and led to a broader global agreement on what a cooperative security regime might look like over the next fifty years.

The real goal problems remaining are not fundamentally problems of goals, but rather of implementation. Such a statement has not been possible during the Cold War and not very believable in the first decade thereafter. One goal is the further expansion democratic choice. Simply put and badly stated: democracy promotes peace. Democracies have different foreign policies than autocracies and monarchies in part simply because the political costs of fighting wars are higher for democratic leaders. If they lose the war, they almost certainly will lose power but even if they win, the domestic political costs may be quite high. As a result of the transparency of democratic choice, this will lead democracy to see a greater likelihood of successful negotiation with potential belligerents who will have to pay high costs if negotiation is unsuccessful, i.e. other

democracies. The same logic suggests that democracies are likely to avoid conflicts that are likely to be risky or lengthy. At the same time, democracies are less likely to be dissatisfied with the status quo in part because they have historically tended to be among the richest countries. In short, leaders of democracies as well as citizens generally benefit from avoiding conflict, especially with one another. However, it now seems apparent that, at the extremes, democratic leaders who see this system threatened will band together, commit resources, and undertake these costs if necessary (Russel, Oneal, 2001).

At the same time, more extensive organisational connections involving a wider range of countries and other sectors help to promote security as well. They may not necessarily be economically efficient, but are necessarily nonetheless. International governmental and nongovernmental organisations also promote peace by fostering the basic ways in which countries peacefully resolve their conflicts while at the same time expanding the ways in which they view communalities among their interests with wide ranging sets of potential belligerents as well as potential allies. These mechanisms tend to convey private information to everyone involved, thereby further reducing uncertainty in the international realm.

Moreover, a continuing truth of world politics has been poverty in certain parts of the globe, especially Africa. The 2000/2001 World Development Report underscores the persistence of poverty in parts of the world while at the same time documenting some progress that has been made. Poverty has dropped in East Asia and in the Pacific, while it has continued to grow in South Asia and Sub-Saharan Africa, where hundreds millions of people live on less than \$1 per day. It is estimated, for example, that over 40 % of the population in South Asia live on less than \$1 per day. At the same time, the World Bank, along with other international organization such as World Health Organisation, has come to realise that material well being is only one, necessary, aspect of development and the elimination of poverty (Fontanel, 1994). Security has now taken a prominent place on the development agenda. The utter devastation of Afghanistan as a result of the former regime's policies and as a result of the subsequent war underscores this point with each broadcast of news.

Security is absolutely essential not only to maintain peace, but also to eliminate poverty. The standard answer in the recent past has been that economic development was the essential ingredient for a peaceful future. Doubtless there is independent merit in economic prosperity. But prosperity alone seems not to be sufficient. In the contemporary environment it is hard to imagine economic prosperity that is created in isolation from the international sphere. At the same time, the obvious toll in human suffering from the violent regime and ensuing conflict illustrates clearly the notion that the public health consequences of war and poverty are inexorably interwoven (King, Murray, 2002).

In summary, democracy, development and international commerce, and international organizations each reduce the risk of international conflict and at the same time enhance human security. This notion empowers individual as well as group of allied countries with considerable ability to affect the course of world politics, not just by avoiding war, but also by building international constraints and incentives. In one way, this idea is a grander version of the basic theories of economic integration that have slowly built the European Union over the past several decades. But, despite considerable globalisation, not everyone around the world shares this liberal ideal.

## **Conclusion**

Indeed, even though the US was the primary target of the September 11 attack, a greater degree of democracy around the world, especially in the Middle East and South Asia, may serve to de-fuse conflict broadly and help to enhance human security. Further isolation from the political community and its general as well as specific international organisations removes further the constraints. So despite Huntington's fears, it is entirely plausible that even civilisations will benefit from representative choice of leadership, commerce and involvement in international network of various general and functional organisations (Sen, 2003).

The end of Cold War and the extinguishing of arms races, but it is indeed unbalancing. It seems clear that it also offers hope that institutions can be created within countries and among them that will change very much for the better our global history of violence as a means of conflict resolution and thereby enhance human security in the short as well as the long run. The only

viable alternative vision seems especially dire – a hegemonic superpower resented or despised by allies and enemies alike, who are faced with diminishing stakes in a peaceful status quo. We would not expect these opportunities to be inexpensive, nor should we short-change them.

### **Bibliography**

Aganbeguyan, A., Fontanel, J. (1994), Un monde en transition. Les exemples de la Russie et de l'industrie d'armement, *Cahiers Espace Europe* 5

Coulomb, F., Fontanel, J. (2003), Disarmament, a century of economic thought, *Defence and Peace Economic*, forthcoming.

Fontanel, J. (1994), Disarmament for development in favour of the Developing Countries, *The Economics of International Security*, 38-50

Fontanel, J. (1995), Organisations économiques internationales,, Masson.

Fontanel, J., Borissova, I., Ward, M. (1995), *Defence and Peace Economics*, 14(3).

Fontanel, J., Ward, M.D, (1993), Military expenditures, armament and disarmament, *Defence and Peace economics* 4(1).

Fontanel, J., Matelly, S. (2000), Le coût des dividendes de la paix, *Mondes en développement* 28 (112).

Fontanel, J. (2002), *Le coût du terrorisme*, Université Pierre Mendès France, Grenoble. hal-02080669.

Fontanel, J., Arrow, Klein, Sen (2003), *Civilisations, globalisation et guerre*, PUG, Presses Universitaires de Grenoble, Grenoble.

Hattori, A., Fontanel, J., Chatterji, M. (1996), *Arms spending, development and security*, APH Publishing Corporation.

King, G., Murray, C. (2002), Rethinking Human Security, <http://gaking.harvard.edu/files/hs.pdf>

Lau, L. (2001), The Chinese economy: Past, present and future, <http://www.stanford.edu/ljlau/presentations/presentations/ChnEcon.PDF>

Lieberman, J.I. (1999), Techno Warfare: Innovation and Military R&D, JFQ, *Joint Force Quarterly*, Summer.

Noël-Baker, P.J. (1926), *Disarmament*, Hogarth, London

Noël-Baker, P.J. (1958), *The Arms Race. A programme for World Disarmament*, Stevens, London.

Richardson, L.F. (1960), *Arms and Insecurity: A mathematical Study of the causes and the origins of war*, Boxwood Press, Pittsburgh.

Russett, B., Oneal, J. (2001), *Trianguling Peace, democracy, interdependence, and international organizations*, WW. Norton, New York.

Sen, A. (2003); Identité et conflit. Existe-t-il un choc des civilisation ?, in *Civilisations, globalisations, guerre*. Presses Universitaires de Grenoble, à paraître 2003.

Shkaratan, O. and Fontanel, J. (1998) Conversion and personnel in the Russian military-industrial-complex. *Defence and peace economics*, 9(4)

Smith, R., Humm, A. and Fontanel, J. (1987) *Capital-labour substitution in defence provision*. London.



White House (2001) Economic Report of the President (2001),  
[http://www.access.gpo.gov/usbudget/fy2002/pdf/2001\\_erp.pdf](http://www.access.gpo.gov/usbudget/fy2002/pdf/2001_erp.pdf)