FROM WAR TO PEACE (AND PERHAPS PROSPERITY): THE USEFULNESS OF UTILITY AND THE SALIENCY OF MEASUREMENT[*]

Syed Mansoob Murshed
Murshed@iss.nl

Thoughts without content are empty, intuitions without concepts are blind.
Immanuel Kant (Critique of Pure Reason, 1781)

Today 65 years ago Hitler invaded the Soviet Union. In this theatre alone, more than 20 million civilians and soldiers were killed in the bloodiest battlefields of the Second World War. The Soviet-German part of the Second World War alone, could stand out as one of the worst wars in human history. In my lecture, I intend to make a spirited defence of the usefulness of the concept of utility in economics, the importance of measurement without which social sciences have little meaning and the relationship between growth (and its obverse, poverty) and conflict. In doing so, I hope to establish the saliency of economics, and its methodologies, in explaining war and peace. I will also say something about civilizational versus rational explanations for contemporary terrorism. I intend to end on a hopeful note on the transitions from war to peace, and we hope prosperity.

1 Utility and Happiness

Is the concept of utility a useful device for measuring happiness? Utility ultimately refers to the quality of life, and economics is rich in approaches to this, many of which go beyond the simple utilitarian paradigm; making that old epithet that economics is 'the gospel of Mammon' rather unfair. True, the crudest form of the utilitarian approach states that (cardinally immeasurable) utility emanates from consumption. That, of course, is a simple-minded fable taught to uninitiated undergraduates. Utility is never solely derived from consumption. One can incorporate a plethora of diverse non-hedonistic components into an individual utility function, such as utility from the utility of one's children which would amount to altruism, as well as utility emanating from solidarity with a cause. Economics analyses are rich in examples of utility functions where many types of subjective preferences are incorporated. Nor is utility synonymous with income or expenditure, even if some economists occasionally make this assertion; see Gasper (2006) for references. Expenditure, which depends upon income, constitutes the budget

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constraint. According to the famous Dutch economist Koopmans (1957), there is a separating hyper-plane between the budget set and our preferences. The budget set constrains our capabilities to what we can afford, even if our wants are infinite. There are other constraints, often binding, besides our income, which can limit our functioning, and economic theory is also able to incorporate these into our models.[1] Our preferences may be adaptive, and even unclear, and economics has a wealth of approaches to tackle this phenomenon, such as the notion of fuzzy preferences. They may also be subject to a whole host of 'externalities'; something that economic science explicitly recognises. This includes, for example, positional goods: whether one is first in line, or the disutility from overcrowded parks. Describing decision making under uncertainty has a long history in economics. Theoretical modelling in economics has always been criticised for being unrealistic. Good theoretical presentation, however, always demands parsimony in explanation; the inclusion of vast amounts of unnecessary detail at the expense of elegance for the sake of trivial gains in realism is rarely justified. Gasper (2006) refers to the phenomenon of subjective well being, and the fact that it stagnates as income increases in the affluent West. This process has long been described in economics as the principle of 'diminishing marginal utility': the more you have of something, the less the incremental benefit from additional amounts of that something. Ergo, an extra dollar to the poor produces greater utility than an additional dollar to the rich.

Broader definitions of economic well being, such as the notion of human development, (see, Streeten, 1993) are measured by the human development index. We also have Sen's (1985) capability approach which states that well being stems from capability. Capabilities are related to entitlements, that could include security; but exchange entitlements or participation in the market are very much part and parcel of 'entitlement'. For various reasons, the capability approach has co-existed uncomfortably with utilitarian approaches. But are they fundamentally different? Rawl's (1971) maximin principle is, perhaps, less well known. Maximin means the maximisation of the minimum *utility*. Thus, allocation and choice under this rule maximises the utility of the least fortunate member (or group) in society.

Economic science would cease to have any meaning if there were no scarcity; if we had unlimited access to resources to satisfy all our wants and desires. Given finite means, we have to optimise our individual and collective choices, and be cognizant of tradeoffs: more of one thing usually means less of another. The virtue of economics is in explicitly pointing out the measurable costs of our actions, in both their pecuniary and intrinsic forms. In making choices, and

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[1] Such as, whether or not we live in a democracy that allows freedom of expression.

measuring cost, the underlying utility function as the objective to be maximised is crucial and central to understanding human behaviour, as are the many constraints individuals face. This is also true when examining strategic behaviour amongst economic agents, and describing political processes.

In the ultimate analysis, happiness or well being or for that matter utility, cannot be accurately measured, as it is innately subjective. We can say that someone is better off than someone else using some objective criterion such as income or the rights they possess. Objective preferences for tangible goods and services (and the conditions for their delivery and consumption) are, however, measurable. This is the market demand for goods and services. In objectively purchasing these goods, something about the underlying preferences are revealed. In turn, they say something about the utility functions in which these preferences are imbedded, and therein lies the usefulness of utility. Human beings also have other requirements, such as their rights, and the type of society they want to live in. These involve collective choice, and I shall turn to them presently.

But first, I would like to examine the concept of altruism, and its application to utility functions with a further extension to the understanding of individual terrorist motivation. For a review of the theory of altruism, see Rose-Ackerman (1996). This is when the donor derives utility from the utility of the recipient. Altruistic sensibilities also apply to those who espouse a cause. Essentially, there are two forms of altruism. One is referred to as pure altruism. This is when the donor derives utility from the benefit of the recipient or the furtherance of a cause, but can obtain that utility passively because it does not necessarily require him to participate actively or directly. He is happy that a purpose is served, or someone is better off, even when persons other than himself do the good deed. For example, individuals can be favour of animal welfare, without actually paying into or participating in animal charities. They are happy that others do so. In this case, altruism is a public good, and as is well known there can be free riding on the public good (this is when we let others pay for the common good). Another form of altruism is known as impact philanthropy, see Duncan (2003): this when the individual not only cares about someone else, but also feels compelled to actually participate in other people's welfare or act for a just cause. This situation cannot produce free riding, by contrast it can lead to oversubscription, for example when the coffers of charities swelled with funds following the Tsunami of December 2004.

From the viewpoint of the individual perpetrator of terrorism, such as a suicide bomber, intrinsic motivation, which is often the outcome of their collective sense of humiliation, plays a major role; therefore deterrence against terrorist groups may backfire if it hardens their resolve to resist, as is modelled by Addison and Murshed (2005).

Deterrence can, however, influence the choice of targets by terrorists. We do see shifting targets from the Twin Towers to Bali, to Saudi Arabia, to Madrid and London. Individual perpetrators of terrorist acts are usually not uneducated and poor (Krueger and Maleckova, 2002), unlike in the case of civil wars where the soldiery is usually drawn from the ranks of the impoverished whose alternative gainful employment prospects are scant. In fact, education can act as an indicator of reliability in acts such as suicide bombing. Individual utility functions associated with terrorism are altruistic. There is not only identification with a cause, something that can also be present in passively interested individuals, but an imperative to *participate* in furthering that cause. Participatory altruism, and the resultant utility function, leads to a stronger urge to act compared to ordinary altruism, where the individual can passively derive utility from the furtherance of the cause he espouses. This drive to take direct action may result in violence, including self-destruction. From the viewpoint of individual choice, suicide bombing may be a rational act as explained by Wintrobe (2002). This is because the individual has made an all or nothing choice between solidarity with a cause and individual autonomy. An all or nothing choice involves a 'corner solution' to a utility maximisation problem. In this situation, changing relative prices (increasing deterrence) has little impact on individual choice, which is another way of saying that deterring terrorism will not succeed in preventing people from committing themselves to their cause, even if the success rate of individual acts of terrorism diminishes. Alternatively, deterrence has to be extremely large to prevent individuals from carrying out violent deeds in this context of deep humiliation. In many cases this implies the physical annihilation or mass deportation of 'terrorists', such as in Israel. Such excessive acts of deterrence are, however, not feasible in democracies with the exception of a state like Israel, where the majority community is inured (and almost callous) to large-scale and very often indiscriminate violence against the Palestinians.

Many of the conditions that enhance our well being are demanded collectively. Some of these are public goods like security; others include our freedoms that are part of the political system. Public goods[2] are used collectively, and our choices regarding their provision depend crucially on how and in what institutional setting collective choice is made: by the median voter, by lobbying or the preferences of a dictator. This is the stuff of classical and contemporary political economy. Strategic behaviour (the foundation for game theory) is central to this type of analysis. Many people are familiar with the famous equilibrium in non-cooperative games, rigorously established by the celebrated mathematician John Nash. Nor is strategic behaviour in the formulation of economic policy conducted in an

[2] Defined as non-rivalled and non-excludable: my consumption of a public good does not detract from other's consumption, nor does my capacity to benefit from a public good rest upon my ability to pay for it.

institutional vacuum; Acemoglu, Johnson and Robinson (2005) emphasise that the long-term future course of an economy depends upon its written or formal political institutions and the informal exercise of power by the influential.

In a utilitarian setting, societal welfare is maximised when the sum of individual utilities are maximised (the greatest good of the greatest number). This, in turn, leads to the two fundamental welfare theorems in mainstream economics which are associated with the concept of *efficiency*. A competitive equilibrium is Pareto efficient, and secondly that a Pareto optimal allocation is also a competitive equilibrium. Pareto efficiency, in the strictest sense, implies that one person cannot be made better off by re-allocation without making at least another person worse off. It also means that changes that make some better off without making any others worse off should be implemented. But it raises problems of equity. In a two-person society, for example, Pareto efficiency is compatible with one person having everything and another person nothing; something that is repugnant to most sensibilities. Consequently, in economics, we are used to separating issues relating to efficiency from normative matters pertaining to *equity*. Our over-riding concern with poverty and inequality are principally related to equity considerations. Let me move on to consider an aspect of collective choice that may be key to securing lasting peace settlements in post-conflict societies. This is known as the concept of *fair division*, which is essentially normative.

Brams and Taylor (1996) point out several allocation rules for a single divisible good, many divisible goods and several indivisible goods. All of these have implications for durable peacemaking involving compromises over issues and post-war economic stakes. If a peace agreement, and the divisions and compromises it entails are perceived to be unfair then the deal itself will not be robust, as these arrangements will tend to break down. Sharing in this regard must be equitable in several senses, as well as being efficient. That is why *envy-free* allocative outcomes are so important. In an envy-free outcome each participant does not regard the allocation achieved by another player to be superior to what he has achieved. And, this principle is at the heart of fair division. In the case of a single divisible good, analogies with cake cutting are applicable. Cake cutting, in a two player situation, implies one person doing the cutting and the other player having the right to call a halt to the slicing procedure. The application of the envy-free criterion, however, may entail several slices or divisions that may be inefficient and in excess of the number of parties to the conflict. This will be all the more true if what is being divided up is not homogenous. A second situation entails several items to be divided, each of which is in principle divisible. Typically, these issues will involve a long period of extended bargaining. The procedure behind the settlement, if reached, is described as the *adjusted winner mechanism*. The adjusted winner mechanism not

only satisfies the standard efficiency and equity criteria, but additionally has a further equitability condition, because it ensures that each player gets more than his share of the bargaining chips initially allotted to him. For example, in a two person case, each player will get more than 50% of the total value attached to all the issues and goods at stake. One side can end up with wins on many high valued issues, and the consequent allocation could be inequitable to the other side. So this mechanism requires an *equitability* adjustment. Basically, this means sharing on high valued issues, where the two sides preferences are close. Thirdly, consider allocating several indivisible issues. The allocation of indivisible goods requires the application of the envy-free principle for any allocation to endure. And, a unique envy-free allocation may not be Pareto-efficient. Pareto efficiency means that one side cannot be made better off without making another side worse off. Pareto efficient outcomes may not remain envy-free if one side has a lower share of relatively more highly prized items (yielding the same utility) that are being allocated, and consequently resent the other sides allocation. For many purposes, fair division implies somehow sharing the indivisible: imagine access rules for all parties to the bitterly disputed, but immensely sacrosanct bones of contention, such as Har'm al Sharif or Temple Mount in Jerusalem. And, because these sites are indivisible, a two-state solution to the Palestinian-Israeli conflict is in the long-run infeasible. A historical example connected to the present-day Sunni-Shia schisms within Iraq is instructive. In the 9th century the Abbaside Khalifa (ruler of the Muslims) Mamun (who could be considered Sunni) nominated the 8th Shia Imam, Ali ar-Rida as his successor. This did not come to pass, but had it happened, it would have gone a long way in healing the political *fitnah* or division within the Muslim world.[3] What is required for long-term lasting peace are confederal arrangements involving sharing.

2 Conflict, Growth and Measurement

Can there ever be true meaning without measurement? Theories require some degree of empirical verification. This is as true for the social sciences, as it is for natural science. Given that a natural experiment is rarely possible in the social sciences, a variety of other methodologies are employed in this regard. Furthermore, social phenomenon are characterised by unpredictable and uncertain behaviour, and often proxies need to be utilised for the actual variables that are to be tested. The empirical methodologies employed range from casual empiricism (mainly case studies) to more rigorous methodologies (which could also involve case studies). I believe that more rigorous methodologies, and universal coverage subject to data limitations, are the more appropriate methods. And economics, with

[3] Doctrinal differences between Sunnis and Shias are infinitesimally small when compared to Protestants and Catholics in Christianity.

its wide ranging use of statistical techniques, including econometrics, is at the forefront of measurement in social sciences.

I would like to move on to the conflict-poverty-growth nexus, emphasising the importance of measurement in this regard. I also want to underscore the importance of institutions, and their measurable capacity in this connection. Ultimately, wars, when compared to negotiated settlements, are irrational because they destroy part of the initial endowment of belligerents, no matter what the final outcome. But the logic of bounded or myopic rationality can sometimes make conflict rational. Furthermore, there is an intimate link between poverty and conflict. One the one hand, war prevents the achievement of the millennium development goals (MDGs); perpetuating poverty, under-development and the lack of growth. And, on the other hand, poverty provides fertile grounds for conflict entrepreneurs, as potential combatants have less to fear from the prospect of death and destruction on account of their own poverty. For all of these reasons ending conflict has to be a high policy imperative in the development, poverty reduction and international security agenda.

Conflict like other political-economic phenomenon merits measurement. The Uppsala data set[4] defines several types of conflict: inter-state (between nation states), intra-state (civil wars), intra-state internationalised (where foreign powers are involved) and extra-state (wars of national independence, which mostly ended in the 1970s). A conflict is defined as minor if there at least 25 battle-related deaths per year for every year in the period. It is intermediate when more than 25 battle-related deaths occur per year for every year in the conflict period, and more than 1000 deaths in the entire conflict, but with less than 1000 per annum. War is defined to describe situations with more than a thousand battle-related deaths in each year of the conflict. Any particular conflict can slip between these categories as the war escalates or wanes over time. Most wars nowadays are internal wars or civil wars. In 2004 there were 30 armed conflicts in 22 different locations. Note that there can be more than one civil war in a country in a given year, as in India (Kashmir, Manipur, Bodoland, Tripura, Assam and the Maoists) and Sudan (Darfur, Southern Sudan). According to the Uppsala data-set, there have been 118 conflicts in 80 locations since the end of the cold war in 1989. After the Second World War the peak in the number of conflicts was in 1991/92. In terms of the total number of conflict years, bearing in mind that there may be more than one conflict inside a single nation-state, which leads to more than one conflict in a single calendar year, the list is led by Burma with 232 conflict years since 1946. India follows with 156 years, Ethiopia has the third highest incidence of

[4] The data are available at http://www.ucdp.uu.se and at http://www.prio.no/cwp/ArmedConflict.

conflict with 88 years, and the UK with 77 years is in sixth position just behind Israel (79 years).[5]

In the spirit of Tinbergen's (1985) suggestion, that urges us to examine the causes of conflict, the contemporary rational choice economics literature offers two possible explanations for the origin of conflict. They are, respectively, grievance and greed; see Addison and Murshed (2002) and Murshed (2002, 2006) for reviews. The former notion refers to historical injustices and inter-group inequalities that could be both economic as well as involving unequal political participatory rights. The latter concept emphasises the role of rents, which may be lootable, in producing inter-group rivalry for their control; a competitive process that can descend into outright war. Here, the role of natural resource rents is crucial, as some types of resource rents are more easily appropriated.[6] In practice both motivations may co-exist simultaneously; it is difficult to motivate groups to fight one another without historical grievances even when valuable resource rents are at stake. The abundance of natural resources can also generate grievances over how these rents are spent (Indonesia and Nigeria). Also, wars motivated mainly by grievances can also degenerate into greed, once war creates new avenues for profit for the few. Thus, greed and grievance are inextricably intertwined. Furthermore, societies with well established mechanisms for peaceful conflict resolution tend not to experience outbreaks of war. In this connection, it has to be pointed out that per-capita income levels tend to be the single most important factor in explaining civil war across nations. In other words the poorer and less developed a nation, the greater the risk of civil war, see for example Collier et. Al (2003). This is because poorer countries tend to have correspondingly inferior institutions of conflict management, greater short-termism in decision making and less to lose from war. Poverty also plays a major role in this regard, as it makes soldiering less unattractive and predation a more obvious survival strategy. Finally, the outbreak of conflict always requires internal or external events that actually trigger war.

The greed versus grievance dichotomy is a useful entry point into the debate about the causes of conflict. But for these forces to take the form of large-scale violence there must be other factors at work, specifically a weakening of what Addison and Murshed (2006) call the 'social contract' (see also Murshed, 2002 and 2006). Therefore, while rents from capturable resources do constitute a sizeable 'prize', violent conflict is unlikely to take hold if a country has a framework of widely-agreed rules, both formal and informal, that govern the allocation of

[5] Interestingly, the UK was involved in the greatest number of inter-state wars (21) during the 1946-2003 period, ahead of France (19) and the USA (16).

[6] For example, it is easier to steal alluvial diamonds compared to Kimberlite (deep mine shaft) diamonds. Similarly, it is more feasible to exact rent by obstructing a land oil pipeline than when the oil is offshore.

resources, including resource rents, and the peaceful settlement of grievances. Such a viable social contract can be sufficient to restrain, if not eliminate, opportunistic behaviour such as large-scale theft of resource rents, and the violent expression of grievance.

Conflict-affected nations have histories of weak social contracts (or a once strong social contract that has degraded). This weakness is in many instances a legacy of colonialism which institutionalised mechanisms favouring settlers over indigenous peoples (Guatemala, Zimbabwe, South Africa); divide and rule favouring one ethnic group over another, as in Rwanda or Burundi; market controls to create rents for settlers to the cost of locals (Zimbabwe); and the expropriation of land and resource rents (Angola, Sri Lanka and the Belgian Congo). A single ethnic group, or a subset, often assumed power in the immediate post-independence era, subjugating others and concentrating the fruits of state power—public employment, other public spending, and resource rents—into its own hands (Burundi and Rwanda). Pre-colonial ethnic rivalry over territory and assets, the case in resource-scarce countries such as Afghanistan, Somalia and Sudan, and the failure of long-standing independent states to strengthen mechanisms of political representation, also lie behind weak social contracts. Hegre et. Al. (2001) point out that the risk of conflict is lower in both well established democracies and autocracies perhaps because of greater state capacity. It suggests that conflict risk is at its highest during transitions to and away from democracy when state capacity is weak, and also in fledgling and imperfect democracies (anocracies). A final complexity in fatally weakening social contracts was the interaction of these domestic factors with external events, notably the Cold War, which provided finance and ideological succour to both ruling elites and rebels. The net result of these processes is the accumulation of grievances within the context of a disintegrating social contract that would otherwise have provided the rules of the game to govern the distribution of the social pie and to achieve peaceful conflict resolution. The collapse of the social contract, and the resulting civil war, nearly always has a strong fiscal dimension: the state is increasingly perceived to exercise favouritism in public spending and to tax unjustly.

Greed is rarely the sole cause of conflict. The relationship between conflict onset and natural resource revenues, must work through other mechanisms, such as a weakening social contract and withering state capacity. Addison, Le Billon, and Murshed (2002) construct a game-theoretic model of contemporary conflict involving the competition for resources combined with historical grievances. In addition to resource rents, grievances also play their part in fuelling conflict by explaining inter-group non-cooperation and serving to lower the cost of participation in conflict. Conflict can increase because of heightened intrinsic grievances, or because there are more lootable resources. Additionally, they distinguish between two main

types of resource exploitation: *point resources*, which mostly (but not exclusively) involve the *extraction* of non-renewable resources (minerals), require less labour input and are geographically concentrated; and *diffuse resources*, such as those which mostly involve the *production* of renewable resources (crops), require large amounts of labour, and are spread geographically (see also Murshed, 2004). Occasionally, coffee/cocoa exporting economies are also classified as point because coffee is often marketed like minerals, and coffee/cocoa based economies are characterised by a (rentier) political economy, similar to point-source economies. The same argument could be applied to the production and export of illicit drugs.

The type of economy can matter in explaining either or both civil war onset and its duration. Certain mineral based economies, and countries where there is a substantial production of crops from which illegal drugs are produced are at a greater risk, although the mineral wealth *per se* does not cause conflict. Diffuse economies also widely experience conflict. As far as the competing greed versus grievance hypotheses are concerned, they may be complementary explanations for conflict. Insofar as they do provide alternative views, a fair test for their relative explanatory powers can only be conducted at the level of a quantitative country-case study, because cross-country comparisons of horizontal inequality are largely meaningless. Indonesia's resource rich regions that have had separatist conflicts with the federal government offer us a striking contrast in trying to gauge the relative explanatory power of the greed versus grievance explanations for conflict. When viewed through the lens of a detailed quantitative case study, the grievance and horizontal inequality explanations dominate any greed motivation. Yet, when looked at through the prism of a cross-country study, Indonesia's resource-rich reasons are examples of a modified form of the greed explanation (resources helping to prolong the duration of conflict and encouraging secession). It would therefore appear that the greed explanation for conflict duration and secessionist wars work in cross-sectional studies, but have to make way for grievance-based arguments in quantitative country-case studies. Grievances and horizontal inequalities may, after all, be better at explaining why conflicts begin, but not necessarily why they persist.

To get an empirical feel for some of the channels mentioned above, a descriptive look at the data may be in order. We compare growth rates, the combined democracy and autocracy score known as Polity 2[7], endowment type and conflict intensity or incidence in selected

[7] The Polity data set gives a rising democracy score of between 0-10. A truly meaningful democracy is only arrived at with a Polity score of 8. The autocracy data set gives an autocracy score of between -10 and 0. The Polity 2 score is a combination of both autocracy and democracy, and a reflection of a country's democratic or non-democratic status. See www.cidcm.umd.edu/insr/polity.

developing countries during the period 1965-2000. This is done selectively in Table 1, and more fully in the annex table. The Polity score is a proxy for institutional capacity, which is coded 1 for autocracies (those with an autocracy score below -4), 3 for democracies (for democracy scores above 4) and 2 for anocracies that have both democratic and autocratic characteristics (with scores of between -4 and 4), and the endowment typology (based upon a country's principal exports, which is subject to change) integrates economic typology to institutional quality and conflict occurrence (measured by conflict incidence and intensity), and then on to growth.

Table 1: Conflict Years, Growth, Polity and Economic Typology in Selected Countries

Country	Conflict incidence in years, 1960-2000	Most frequent regime type	Annual average Per-capita income Growth rate 1965-1999	Economic typology
Burma (Myanmar)	177	1	1.5%	Diffuse, Point
India	104	3	2.4%	Manufacturing
Ethiopia	81	1	-0.3%	Coffee/Cocoa
Philippines	59	1;2;3	0.9%	Diffuse, Manufacturing
Iraq	57	1	-3.5%	Point
Angola	43	1	-2.1%	Point
Iran	41	1;2	-1.0%	Point
Algeria	37	1;2	1.0%	Point
Chad	36	1	-0.6%	Point
Colombia	35	3	2.1%	Coffee/Cocoa
Indonesia	32	1	4.8%	Point, Manufacturing
Guatemala	31	1;2	0.7%	Coffee/Cocoa
Sudan	31	1;2;3	0.5%	Diffuse, Point
South Africa	31	2	0%	Point
Mozambique	27	1	1.3%	Diffuse
Uganda	23	1;2	2.5%	Coffee/Cocoa
Sri Lanka	22	3	3.0%	Diffuse, Manufacturing

Source: Murshed (2006)

Table 1 gives us 17 countries with the highest conflict incidence since 1960[8], along with their average annual long-term growth rates of per-capita income accompanied by the typology of the economy and the most frequently occurring regime type. Note that countries can have more than one year of civil war in any given calendar year if there are several conflicts taking place within the nation simultaneously. Burma, India, Ethiopia, Philippines, Iraq and Angola (also Israel) have had more than one conflict per annum in a 41 year period reported in Table 1. Note that incidence does not imply anything about conflict

[8] I have excluded Israel with 49 years, as it is a rich country when one excludes the Palestinian territories, as well as Cambodia (36 years) and Yemen (23 years) because of the paucity of economic data.

intensity, something which is measured by fatalities. The highest conflict intensity per-country is reported in the annex table.

Only five of these high conflict incidence nations reported in Table 1 have a per-capita income growth rate in excess of 2% per annum in the long-term: Indonesia, India, Sri Lanka, Colombia and Uganda. Generally speaking, poor growth performers have more conflict years in Table 1. Even in these cases, it might be possible to construct counter-factual analyses to demonstrate that conflict adversely affected growth. In Uganda, there was a sharp and remarkable growth recovery in the 1990s post-conflict era making up for earlier lost years. Only four economies (India, Philippines, Sri Lanka and Mozambique) have not been point-source or coffee/cocoa economies (the Burmese conflicts are fuelled by trade in illegal substances). This lends some support to the arguments made above regarding empirical regularities regarding conflict across a cross-section of countries.

The annex table gives us a fuller picture of the relationship between economic typology, regime type, growth rates and the presence or absence of civil wars measured by its highest intensity. Countries are type-cast as point-sourced, coffee/cocoa, diffuse or manufacturing based on their principal exports in 1985 or the nearest year in the 1980s. In reality, of course, export patterns change, as is described in the fourth column of the annex table. But we do need some descriptive standard upon which to anchor economic type. Growth failures, described as average growth in per-capita income below 2% per annum during 1965-99 are most common in point-sourced and coffee/cocoa economies. Note that only four point-sourced and three coffee/cocoa based economies have had growth rates of over 2% per annum in per-capita income. Botswana and Indonesia are the best performing point-sourced economies. Among diffuse economies, growth successes are more frequent (in about nine out of twenty nine cases). Manufactured goods exporters do best in terms of growth.

Many point-sourced and coffee/cocoa economies that are growth failures (with long-term growth rates under 2% per annum on an average) have tended to fall into conflict, as well as having polities that are not democracies. The annex table indicates that only three point-sourced countries and four coffee/cocoa economies did not descend into some form of civil war. Diffuse economies also have conflict; examples of the high incidence of civil wars occurring in diffuse economies are in South Asia, the Philippines and Burma, as well as Mozambique and Zimbabwe in Africa. In total, eight out of thirty diffuse economies have avoided civil war, a record that is better than for point-sourced and coffee/cocoa based economies. Two prominent examples of growth failures not experiencing civil war are Tanzania and Zambia. Notwithstanding India, manufacturing economies are least likely to experience outright civil war. Perhaps this is because they have the best growth rates and institutional quality. They also

probably have the most diversified economies, and are able to withstand the commodity price and national income fluctuations associated with the staple trap (reliance on a single commodity), which make economies more prone to the risk of conflict

It is very discernable that India, Sri Lanka and Colombia are the stable democracies in the post 1960 era that have had civil wars, including high intensity conflict. India, in particular, is interesting because of its very high democracy score, and having the highest number of total conflict years (due to the multiplicity of civil wars in India) after Burma, which has not been a democracy in the period under question. All the transitions in regime type from autocracy to anocracy to democracy (during 1960-2000) are described in the annex table, column 6. It is clear that multiple switches in all directions are possible, and not just from autocracy to democracy. Nevertheless, only 5 out of the seventeen nations with a high conflict incidence have ever been democracies with a democracy score over 4. Three points about democratic transitions need to be stated. First, most developing countries were not democracies before the end of the cold war. The end of the cold war heralded democratisation due to outside pressures, but many of these countries descended into anocracy. Secondly, few developing countries are fully established and meaningful democracies in the sense of having democracy scores of 8 or above. Costa Rica is the best example of a full democracy in the global South, followed by India. Even Colombia has sometimes slipped down to a score of 7. Finally, the system of characterising democracies and autocracies in the Polity data-set has its limitations. There seems to be a systematic bias in describing Arab countries as autocracies. Democracy, even stable democracy, does not guarantee the absence of armed conflict, both of the secessionist and rebel varieties, as the examples of India, Colombia, Sri Lanka, the Philippines and others indicate. Autocracies also fall into conflict, as Table 1 and the annex table points out. Nevertheless, stable autocracies such as China and Singapore have avoided civil war, as did Taiwan and South Korea which became democracies recently. Despite prominent outliers such as India, Colombia, and Saudi Arabia, most conflict prone countries are neither stable democracies nor autocracies (see column 6 of the annex table), lending support to the Hegre et. Al (2001) finding that conflict risk is greatest when regime types are in transition.[9] In fact, conflict prone countries experience rapid changes in regime type.

While we can never be sanguine about the true nature of the causes of conflict, it does seem to occur more frequently in non-manufacturing

[9] India, Sri Lanka, Colombia, Papua New Guinea, Trinidad and Tobago and Venezuela are stable democracies which have experienced conflict; the first three have high intensity conflict. Costa Rica, Jamaica and Mauritius are examples of stable democracies that have avoided civil war. Similarly, Mauritania is a stable autocracy that has not had civil war. Iraq and Saudi Arabia provide instances of stable autocracies that have failed to avoid civil war.

and non-diffuse economies. This does not mean, however, that conflict does not occur in diffuse-agricultural economies, if these economies are poor, because that explains the undiversified nature of the economy and shallow economic interaction adding to conflict risk. There does seem to be a distinctive positive association between conflict and growth failure.

In summary, growth can reduce conflict risk in four ways. First of all, by lowering poverty it provides fewer ready recruits for conflict entrepreneurs. Secondly, growth ultimately lowers inequality, and this will reduce conflict producing inter-group (horizontal) inequality. Thirdly, growth creates denser sets of interaction between economic agents, resulting in situations where there is much more to lose from conflict. Fourthly, growth improves institutional functioning, creating better chances of peaceful conflict resolution; even producing situations ripe for the emergence of democracy, as with Lipset's (1960) modernisation theory of democracy.

3 Terrorism and the Clash of Civilizations

I wish to now turn to another aspect of conflict, terrorism, where culturalist or civilizational and rationalist explanations are at loggerheads. A transnational terrorist act is one that impacts on the citizenry or interests of a country not directly part of the conflict in question. It can occur anywhere, both in the country where the conflict is occurring or elsewhere. Thus, for example, if the USA or the West is a target, then its citizens may be attacked in countries where the attackers are fighting the state, such as by Jihad in Egypt or Moro separatists (Abu Sayyaf) in the Philippines. Attacks, kidnappings and bombings can also occur in third countries, such as Malaysia, Bali (Indonesia) and Saudi Arabia; attacks on US interests can take place in the USA (such as against the Twin Towers), or elsewhere as with the US embassy bombings in East Africa.

In an influential paper, Doran (2002) points out that transnational terrorism really reflects a civil war taking place elsewhere. The ultimate objective of the terrorists is to induce a backlash that will cause the masses in the country with the domestic dispute to rise against their oppressive state. A further implication of that paper, and one that has considerable intuitive appeal, is that the nationals or interests of the country subjected to terrorism also represent something that is in some way a patron or ally of the real enemy of the terrorists. Thus, when Westerners are kidnapped by the FARC in Colombia, or the Abu Sayyaf in the Philippines, the political aim of the kidnappers is to target the policy of support by the West for the government that the terrorists wish to overthrow. The interests and citizens of the United States, and its close western allies, have become major targets for terrorist action by groups who see them as sponsors and allies of regimes and states that are in a real or virtual state of

civil war with rebellious groups. The USA is a major financial and military sponsor of Israel, and of other governments in the Middle East that are disliked and violently opposed such as in Iraq, Egypt and Jordan. The United States became a close ally of India in the context of the Kashmir dispute, and India has recently engaged in military cooperation with Israel. Some groups, such as Al-Qaida at present, and Libya in the past, may espouse a raft of multi-national causes ranging from the opposition to the US military presence in Saudi Arabia and Iraq to the Israeli treatment of Palestinians, including opposition to Indian policies in Kashmir, and in the past, support for the IRA in Northern Ireland (by Libya and Iran in the 1980s). Transnational terrorism is not confined to the developing world. Activities of groups such as November 17th in Greece against Western targets or the IRA in mainland Britain are two examples.

The paper by Addison and Murshed (2005) models these three-way interactions in a game-theoretic framework. The parties include a government that faces armed opposition at home; this may spill over in the form of acts of terrorism by the state's opponents or rebels against the government's external sponsor. Transnational terrorism is therefore the internationalisation of a domestic dispute. The model is also compatible with the alternative "clash of civilizations" explanation for terrorism, which sees acts of violence perpetrated by Muslims as part and parcel of the inexorable struggle between the Judaeo-Christian tradition and Islam (Huntington, 1996).[10] But the realpolitik of international relations, which greatly disadvantages Muslim peoples and nations, is that which is truly behind acts of terrorism conducted by Muslims rather than some primordial cultural inferiority or difference. Culturalist explanations are, in the main, a fig leaf for covering up neo-colonialist injustices perpetrated against Muslims. The Addison and Murshed (2005) model can also be used to visualise situations where there are uncertainties about terrorist motivation, as in the case of bin Laden where it is unclear whether his dislike for the USA exceeds that for the "apostate" kingdom of Saudi Arabia. They also emphasise the importance of intrinsic motivation in transnational terrorism, something that is distinct from the pecuniary motivation more relevant to the analysis of civil war.

Addison and Murshed (2005) begin by positing a domestic dispute, which for analytical convenience resembles a civil war, but could include armed rebellion or other forms of organised violence by excluded groups, and the state's response to it. The government itself receives support from an external power. This aid can be utilised either to fight or appease rebels (in the latter case through a fiscal transfer to them to reduce their level of grievance, such as increased

[10] The Dutch politician Geert Wilders feels that a proportion of Muslims residing in Europe and the Netherlands are potential terrorists who may want to violently overthrow Western institutions. See his interview on BBC World Service TV in the programme Hard Talk, broadcast on 22nd March 2006.

social spending or political inclusion to redress past neglect). They model acts of appeasement by the government through the mechanism of a financial transfer, but it could also be forms of accommodation such as power sharing. Rebels react "optimally" via strategies in connection with their interaction vis-à-vis both the government and its external sponsor. The rebel options include optimal quantities of fighting or peaceful efforts against their enemy at home and its external sponsor, with terrorism directed against the latter. They are, therefore, rebels at home and terrorists abroad.

The outside power is concerned with its own security, something that can be achieved either through its own deterrence of terrorism, or the mechanism of aid to the government, which is meant to be used to pacify and include the rebels (but may be misused for fighting, which in turn may endanger the foreign power by directing rebel attention to it). Just as there will be governments who are prone to belligerency or more inclined to appease the rebels, the rebels too can be of a more or less militant type. The former type nurses a deep historical sense of grievance and collective humiliation (see Lindner, 2001 on humiliation in general and violent expressions of collective humiliation). They will not be easily deterred, as they are strongly imbued with an *intrinsic* motivation to fight, and instead they will respond to acts of deterrence with greater militancy, as discussed above. The latter (less militant) type of terrorist group's motivation resembles criminality, and that is something that is more readily deterred.

There is an unfortunate tendency to ascribe acts of international terrorism to the nature of a particular culture, Islam. The Huntington (1996) hypothesis about the clash of civilizations has gained a great deal of currency. Ultimately, it is a means of disguising the root causes of terrorism that lie in political injustices, unfair post-colonial dispensations and economic discrimination. In the Middle East the British-French Sykes-Picot pact (during the First World War) resulted in an extremely unfair disposition of the former Ottoman territories. Later the emergence of what many regard as a colonial settler state, Israel, and the West's lack of even handed behaviour towards the protagonists in the Arab-Israeli conflict spawned deep resentment, as have growing economic disparities.[11] Violence has a rational basis which is universal to all cultures, and is not confined to selected demonised societies.

Secondly, culturalist views portray Islamic cultures and political entities as intolerant and enamoured of violence. One of the oldest Islamic traditions is magnanimity in victory, and respect for the rights of non-combatants and prisoners of war. There are strict rules laid down in the Koran regarding the *humane* treatment of non-combatants and prisoners of war. The former must not be harmed

[11] Described in graphic detail by Rema Hammami (2006).

under any circumstances, and individuals in the latter category must be afforded an opportunity to purchase their freedom to which the captor himself must contribute. Indeed, in the historical ‘clash of civilizations’ between Christian Europe and the Muslim Middle East it was the former who were infamous for their barbarity, during the Crusades and the Spanish Reconquista, to give just two examples. When the gradually dwindling Arab rule in Spain finally ended in 1492 with the capitulation of Granada, the victorious Castilians did not treat subjects of other religious persuasions justly and tolerantly like their Muslim predecessors (see Ameer Ali, 1899). Instead, they evinced a totalitarian intolerance of diversity, requiring conversion into the Catholic sect of Christianity by all, and they also violated their treaty obligations (during the surrender of Granada) regarding religious tolerance. Some Muslims and Jews ostensibly converted, secretly adhering to their faith. There were several Muslim revolts, uprisings that were brutally suppressed. Large numbers of Jews and Muslims were expelled. It is said that some 3 million Muslims were forcibly deported, some simply dumped on the Moroccan coast line. The process of expulsion was long and painful, lasting for well over a century, and it was complete; virtually no Jew or Muslim was left in Spain following this Renaissance holocaust. The earlier barbarity with which the Jewish and Muslim inhabitants of Jerusalem were massacred during the First Crusade is well known, as is Richard the Lion Hearted’s slaughter of the residents of Acre during the Third Crusade, to mention just two acts of barbarity during the Crusades.

Furthermore, it has to be admitted that toleration of religious diversity is a rather recent development in Europe, unlike in the Muslim world. The treaty of Westphalia in 1648, which defines the principle of state sovereignty in Europe, gave the ruling monarch the right to impose his own religion upon his subjects, and he could, and often did, expel dissenters and those belonging to other confessions. By contrast, virtually all Muslim rulers from the 7th century onwards allowed non-Muslim citizens not only to live in their kingdoms, but also granted them the privilege of being governed by their own legal systems. The tax on non-Muslims (*Jiziya*) was payment levied in lieu of military service. The best historical example of religious toleration was in the Ommeyade kingdom of Cordoba, where Muslim, Jew and Christian lived side by side, enjoying equal rights of citizenship.[12]

Thirdly, Western culturalist views attempt to establish the incompatibility of Islam with democracy. We have to bear in mind the fact that our contemporary understanding of the nature of democracy, including commonly held precepts regarding the nature of rights and universal suffrage, are relatively recent phenomena, and can only

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[12] Described in numerous Western accounts, see Ameer Ali, 1899. Also mentioned by the 19th century British Prime Minister of Jewish origin, Benjamin Disraeli, in his novel Conningsby. In Sir Walter Scott’s novel Ivanhoe, Isaac the Jew leaves the pogroms of England in the 1190s for the safety and security of Moorish Spain.

really function in societies with a high standard of living. True, many nations in the Muslim Middle East and South Asia are not exactly paragons of the democratic tradition.[13] But Islamic traditions and philosophy are quite clear that the legitimacy of the ruler emanates from consent, and the Islamic principle of contract[14] between the ruler and the ruled (see, Abou El Fadl, 2004) pre-dates the notion of contract in Western political philosophy where it first makes an appearance in the 17th century. Indeed, the first Muslim state (during the lifetime of the Prophet Muhammad and for thirty years after his passing) was both a commonwealth and a republic, where the head of state (*Khalifa*) was elected.

Finally, there is nothing immutable about culture[15]; cultures evolve over time (see, Cuesta, 2004), and humanity has a proclivity for discovering new cultural demons, as well as revising views about erstwhile cultural bogey-men. Yesterday's villains can become today's heroes.[16] Islam, however, is an exception, and has always occupied a fixed point in the otherwise evolving Western demonology, with perhaps a brief pause during the Cold War. So, there does appear to have been a historical clash of civilizations between Christian (and very recently Judaeo-Christian) Europe and Islam. That conclusion may be drawn from the sum total of history, but not its constituent parts; present-day Muslim perpetrated transnational terrorism has economic and political roots in the unjust situations that prevail in the Middle East, Kashmir and elsewhere. Historically, the Islamic world has, by and large, endeavoured to be accepted by the West on terms of parity. Judaism and Christianity are accorded a special place in Islamic belief as religions emanating from earlier revelations. In

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[13] This may have something to do with the presence of oil, which appears to hinder democratic development, see Ross (2003).

[14] *Aqd* in Arabic.

[15] I am myself very much descended from victims of 19th century British imperialism in India and the consequent clash of civilizations. On my paternal side, my grandfather's grandfather lost his living as a lawyer in the 1830s due to the British decision to replace Persian with English (they had ruled over Bengal in India for some 75 years prior to that) as the official language. On my mother's side, some of her ancestors had a land grant from Mughal emperors in the 17th century, which was meant to defray their living expenses while they engaged in scholarship (the counterpart of a modern research grant). During British rule not only did their 'research grants' dry up, but they were reduced to such straitened circumstances that some of them were compelled to make the journey from their home town (Salar) to the great city of Calcutta on foot. Yet both sets of my ancestors eschewed English, and an English (or western) education, firmly adhering to their traditional values and texts (written in Arabic and Persian) until adverse economic circumstances compelled both my grandfathers to accept an English education in the 1870s and 1890s. I am immensely proud, however, of the fact that my paternal grandfather declined an honorific title from the British Empire in the 1920s, and my maternal grandfather resigned from his majesty's service in that same decade.

[16] An example lies in the collective Indian nationalist ethos. The Mahrattas (from near Mumbai) were regarded as marauding bandits in the 18th century, as evidenced by a Bengali lullaby, but later in the 20th century the Mahratta leader, Shivaji metamorphised into a nationalist icon.

many ways, Islam does not claim to be a new religion at all, regarding itself as descended from earlier Abrahamic religious revelations that are also central to Islamic faith. Historically, the West has decided not to accept Islam's gestures of friendship or alliance, but instead has engaged in demonising and distorting it. In which case, the fundamentalist backlash in the Muslim world could easily be compared to the enraged feelings of the discriminated Jew, Shylock, in Shakespeare's Merchant of Venice:

> **Shylock to Salarino:** I am a Jew. Hath not a Jew eyes? hath not a Jew hands, organs, dimensions, senses, affections, passions? fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer, as a Christian is? If you prick us, do we not bleed? if you tickle us, do we not laugh? if you poison us, do we not die? and if you wrong us, shall we not revenge? If we are like you in the rest, we will resemble you in that. If a Jew wrong a Christian, what is his humility? Revenge! If a Christian wrong a Jew, what should his sufferance be by Christian example? Why, revenge! *The villainy you teach me I will execute, and it shall go hard but I will better the instruction.*

[Merchant of Venice, William Shakespeare, Act 3, Scene1, emphasis added]

Islamic fundamentalism feeds on the West's historical and present rejection of Islam in its struggle to achieve parity as an equally important world religion, as well as the present-day objective, and perceived, maltreatment of Muslims and Muslim causes. I do not believe its distaste for the West is based on primordial hatred; nor is the primary 'fundamentalist' objective the obliteration of Western values[17]; the removal of objective injustices, glaring double-standards when it comes to the Muslim world, and of course *economic progress* will take the wind out of the sails of fundamentalism. One of the enduring lessons of history is that economic development and prosperity modifies religious beliefs and practices.

Going back to terrorism, mention should also be made of another form of terrorism, the sort that is perpetrated by the state, and kills larger numbers of innocent civilians than any other form of terrorism. In the pursuit of its wars, the aggressive unilateralism of the great powers has resulted in a great deal of violence towards civilians, even when contemporary precision weapons allegedly minimise 'collateral damage'. In the present world, the chief culprits in this regard are the USA and Israel. They regard themselves as just, but that sense of justice strikes a chord with Thrasymachus's cynicism and frustration in connection with the idea of justice in Plato's Republic:

> I declare that justice is nothing else than that which is advantageous to the stronger.

[page 14, of the Republic of Plato, translated by A. D. Lindsay, 1937]

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[17] As stated, for example, by the British Prime Minister Tony Blair in an address at Georgetown University on 26th May 2006.

In summary, purely military strategies against terrorism may backfire, as suggested earlier. The real solutions to terrorism, including acts perpetrated by second or third generation Muslims in Europe as with the London bombings of 2005, lie in the economic and political spheres. This means raising economic growth (or expanding economic opportunities for disadvantaged Muslim migrants in Europe) so that incomes and employment opportunities increase, thereby reducing the frustrations of young unemployed males who are otherwise ready recruits for terrorist organizations. Also, increased economic interdependence with the outside world through formal trade and economic interaction generally induces peace (Polachek, 2002). Political action is needed at two levels, involving the removal of exclusion and humiliation.

4 Conclusions

In an influential work, Tinbergen and Fischer (1987) argued that security and socio-economic policy needed integration. That was during the cold war, and nowadays most large scale conflict manifest itself in civil wars and acts of terrorism. Yet Tinbergen's message is as relevant today as it was two decades ago. The security and development agenda cannot be dichotomised, and I have argued that (Murshed, 2003) that the development agenda should not be captured by security considerations. Ultimately, the surest guarantor of lasting peace is economic progress, because it raises the costs of conflict and it is never enough to save people's lives without securing their livelihoods. And in this objective, that of traversing from war to peace (perhaps with prosperity), the role of economics is central. Economics, with its concerns for examining underlying preferences and processes (utility), coupled with its concern with measurement, can do a lot in explaining war and policies for peace. I have mentioned a few of these: the contribution of growth towards lowering conflict risk; the interaction between polity and endowments; the costs of war; factors associated with a lasting peace that require fair division of the post-war economic and political stakes. I also do not believe that a primordial clash of civilizations produces the current Muslim perpetrated terrorism and fundamentalism. Their roots lie in very palpable economic and political discrimination. Their can be considerable debate about terrorist objectives, but I do not believe it aims to overthrow the West; rather it is part of a struggle to be accepted in terms of parity by those who have always wanted to consign Islam to inferiority.

It does seem that the number of intra-state wars has been declining since the mid-1990s, a point that is repeatedly stressed in the Human Security Report (2005). The number of conflicts in sub-Saharan Africa, the Balkans and the former Soviet Union have declined through judicious outside intervention and aid (greater in per-capita terms in the Balkans). This does not, however, provide grounds for

complacency regarding the dangers of civil war; the world, especially Western powers and aid donors, need to be vigilant regarding conflict risk and its consequences for poverty. The tone of the human security report may be excessively optimistic in this regard. We live in a world where, to give a few examples, the conflict in Afghanistan is not abating and is spilling over to Pakistan, the civil war in Iraq has assumed the proportions of 'war' as defined by the Uppsala data-set in terms of fatalities; the Maoist insurgency in Nepal is far from being resolved, the stand-off between the government and the Tamil rebels in Sri Lanka looks increasingly fragile, and the uneasy peace in Southern Sudan is juxtaposed by one-sided outside support for the 'rebels' in Darfur.

I would like to say two things about academic investigation. First, the necessity for courage when searching for the uncomfortable truth; this also applies to academics who are always under pressure to achieve good teaching evaluations. My sentiments in this connection are best summarised in a speech made by the brave anti-McCarthyite broadcaster for CBS television, about the use and abuse of that formidable medium:

----Because if they are right, and this instrument is good for nothing but to entertain, amuse and insulate, then the tube is flickering now and we will soon see that the whole struggle is lost.

This instrument can teach, it can illuminate; yes, and it can even inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise it is merely wires and lights in a box. There is a great and perhaps decisive battle to be fought against ignorance, intolerance and indifference.

[Ed Murrow, Speech to the Radio-Television News Directors Association and Foundation, Chicago, 15th October 1958, disseminated in the film Goodnight and Good Luck (2005), www.rtnda.org/resources/speeches/murrow.html]

Secondly, the need for modesty when it comes to stating our views, and publicizing our own findings, in that vast ocean of scientific discovery and human understanding. This feeling is best expressed in Milton's poem:

---------God doth not need
Either man's work or his own gifts, who best
Bear his mild yoke, they serve him best, his state
Is kingly. Thousands at his bidding speed
And Post o'er land and ocean without rest:
They also serve who only stand and wait.

John Milton (On His Blindness)

Finally, I would like to thank the ASN Bank, the Stichting Vredeswetenschappen, but more generally and collectively the kingdom of the Netherlands for bestowing so many honours on me.

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Annex Table: Economic Category, Transitions in Export Type, GDP Per Capita Growth (1965-99), Political Regime Changes and Highest Conflict Intensity in Selected Developing Countries

TYPE	Country	First and second export in mid-1980s	Export Change	GDP growth rate 1965-99	Polity ID	Highest Conflict Intensity	Growth Failure
Manufacturing	Bangladesh	Woven textile, textile	D;M	1.3	3;2;1; 2;1;3	2	Yes
	China	Vehicles parts, knitwear	P;M	6.4	1	0	
	Hong Kong	Manufacturing	M	5.4	n.a	0	
	India	Pearl, clothing	D;M	2.4	3	3	
	South Korea	Ships, clothing	D;M	6.6	2;1;2; 3	0	
	Nepal	Floor cover, clothing	D;M	1.2	1;2;3	3	Yes
	Singapore	Manufacturing	D; P;M	6.3	2	0	
	Taiwan		M		1;2;3	0	
	Turkey	Clothing, textile	D;M	2.2	3; 2;3;1; 3	3	
Diffuse	Argentina	Wheat, oil seeds and nuts	D	0.4	2;1;3; 1;3	3	Yes
	Benin	Cotton, cocoa	D; C	0.2	1;2;1; 2;3	0	Yes
	Burkina Faso	Cotton, live animals	D	1.1	1;2;3; 1;2	1	Yes
	Burma (Myanmar)	Rice, wood	D	1.5	1	3	Yes
	Dominican Republic	Sugar, pig iron	D; C P ; M	2.5	2;3	1	
	Fiji	Sugar	D		3;2;3	0	
	Gambia	Oil seeds, vegetable oils	D	0.5	3;1	1	Yes
	Guinea-Bissau	Fruits	D; P	0.0	1;3;2; 3	2	Yes
	Guyana		D; P	??	2;1;3	0	Yes
	Honduras	Fruits, coffee	D; C	0.6	2;3	1	Yes
	Jordan	Fertilizers (crude and (manual)	D;M	0.4	1;2	3	Yes
	Malaysia	Crude petrol, Vegetable oil	D; P; M	4.3	3;2	1	
	Malawi	Tobacco, tea	D	0.6	1;3	0	Yes
	Mali	Cotton, live animals	D	-0.1	1;2;3	1	Yes
	Mauritania	Iron, fish	D	-0.2	1	0	Yes
	Mauritius	Sugar, clothing	D;M	3.9	3	0	
	Morocco	Fertilizers, Inorganic elements	D; M	1.9	1	3	Yes
	Mozambique	Fish, fruit	D	1.3	1;3	3	Yes
	Pakistan	Cotton, rice	D;M	2.7	2;3;1; 2;3;1	3	
	Panama	Fruit, fish	D; P; M	1.1	2;1;3	1	
	Paraguay	Cotton, oil	D	2.1	1;2;3	0	
	Philippines	Special trans, vegetable oil	D;M	0.9	3;2;1; 2;3	3	Yes
	Senegal	Fish, vegetable oils	D;M; P	-0.4	1;2;3	2	Yes
	Somalia	Live animals, fruit	D		3;1;2	3	Yes
	Sri Lanka	Tea, clothing	D; C; M	3.0	3	3	
	Thailand	Rice, vegetable oils	D;M	5.1	1;2;1; 2;1;2; 3	2	
	Togo	Fertilizers, cocoa	D;C; M	-0.5	1;2	1	Yes
	Uruguay	Wood, meat	D; M	1.4	3;2;1; 3	0	Yes
	Zimbabwe	Tobacco, Pig Iron	D;M	0.9	2;3;2; 1	3	Yes

TYPE	Country	First and second exports	Transition in Export type	Growth rates 1965-99	Polity ID	Conflict Intensity	Growth Failure
Point	Algeria	Petroleum products, crude petrol	D; P	1.0	1;2;1;2	3	Yes
	Angola	Crude petrol, petroleum products	D; C; P	-2.1	1;2	3	Yes
	Bolivia	Tin, gas	P	-0.3	2;1;2;1;3	1	Yes
	Botswana	Diamonds	P	7.1	3	0	
	Chad	Cotton, live animals	D; P	-0.6	1;2;1;2	3	Yes
	Chile	Copper, nonferrous ore	P	2.5	3;1;2;3	1	
	Congo-Brazzaville	Crude petrol, petroleum products	D; P	1.7	1;2;3;1	3	Yes
	Ecuador	Crude petrol, coffee	D; P	1.9	2;3;2;1;3	1	Yes
	Egypt	Crude petrol, cotton	D; P	3.3	1	*3*	
	Gabon	Crude petrol, wood	P	0.8	1;2	1	Yes
	Indonesia	Crude petrol, gas	P	4.8	1;3	3	
	Iran	Crude petrol, tapestry	P	-1.0	1; 2; 1; 2	3	Yes
	Iraq	Crude petrol, fruit	P;D:P	-3.5	1	3	Yes
	Jamaica	Inorganic elements, nonferrous metals	P; M	-0.2	3	0	Yes
	Liberia	Iron, rubber	P; D		1;2	3	Yes
	Mexico	Crude petrol, petroleum products	P; M	1.5	1;2;3	1	Yes
	Niger	Uranium, live animals	D; P; M: P	-2.3	1;2;3;1;2	1	Yes
	Nigeria	Crude petrol, cocoa	P; C: P	0.0	3;1;2;3;1;2	3	Yes
	Papua New Guinea	Nonferrous metal, coffee	C; P	0.7	3	1	Yes
	Peru	Petrol, nonferrous metal	D; P	-0.3	3;1;2;3;2;FI	3	Yes
	Saudi Arabia		P	-0.1	1	1	Yes
	Sierra Leone	Pearl, nonferrous metal	P	-1.2	3;1;2;1;2	3	Yes
	South Africa	Special, coal	P; D; P	0.0	2;3	3	Yes
	Sudan	Cotton, oil seeds	D; P	0.5	3;2;1;2;3;1	3	Yes
	Syria	Crude petrol, petroleum products	D; P	2.3	2;1	3	
	Trinidad & Tobago		P; D: P	1.8	3	1	Yes
	Tunisia	Crude petrol, clothing	P; M; D	2.7	1;2	3	
	Venezuela	Crude petrol, petroleum products	P	-0.8	3	1	Yes
	Zaire (Dem. Rep of Congo)	Copper, crude petrol	P; C ;P	-3.4	1;2	3	Yes
	Zambia	Copper, zinc	P	-2.0	2;1;3;2	0	Yes

TYPE	Country	First and second exports	Transition in Export type	Growth rates 1965-99	Polity ID	Conflict Intensity	Growth Failure
Coffee/cocoa	Brazil	Coffee, petroleum products	C; D; P; M	2.4	1;2;3	0	
	Burundi	Coffee, tea	C; D; P	0.6	1;2;1;2	3	Yes
	Cameroon	Coffee, cocoa	C; P	1.1	1;2	1	Yes
	Central African Rep.	Coffee, wood	C; P; C	-1.1	1;3	0	Yes
	Colombia	Coffee, petroleum products	C; P	2.1	3	3	
	Costa Rica	Coffee, fruit	C; D; M	1.4	3	0	Yes
	Cote d'Ivoire	Cocoa, coffee	C	-0.7	1;2	?	Yes
	El Salvador	Coffee, sugar	C; D; C	-0.3	2;1;2;3	3	Yes
	Ethiopia	Coffee, hides	C; D	-0.3	1;2;1;2	3	Yes
	Ghana	Coffee, aluminum	C; P	-0.7	1;2;1;2;3;1;2	1	Yes
	Guatemala	Coffee, crude veg materials	C; D	0.7	1;2;1;2;3	3	Yes
	Haiti	Coffee, clothing	C; M	-0.9	1;3;1;3;2	1	Yes
	Kenya	Coffee, tea	C: P; C	1.2	2;1;2	1	Yes
	Madagascar	Coffee, spices	C; D	-1.7	2;1;2;3	1	Yes
	Nicaragua	Coffee, cotton	D; C	-2.9	1;2;1;2;3	3	Yes
	Rwanda	Coffee, tin	C; P:;C	-0.1	1;2	3	Yes
	Tanzania	Coffee, cotton	C; D	..	1;2	0	Yes
	Uganda	Coffee, hides	C; D; P	2.5	3;2;1;2;1;2	3	

Source: Murshed (2006)

Notes: The typology of the economy in column 1 is determined by principal exports in the mid 1980s (mainly 1985) based upon UNCTAD sources, see Murshed (2004). Export transition refers to switches in the country's principal exports in the 1965-2000 period with: D (diffuse), M (manufacturing), P (point-source) and C (coffee/cocoa). Growth figures are drawn from the World Development Indicators and UNCTAD; growth failure implies an annual average growth rate of per-capita income less than 2% during 1965-1999. The Polity ID refers to transitions in the country's regime type in the 1965-2000 period: 1 (autocracy), 2 (anocracy) and 3 (democracy). The Polity data are obtained from: www.cidcm.umd.edu/insr/polity. Conflict intensity refers to the highest conflict intensity in the 1965-2000 period, italics refer to conflict intensities in inter-state wars; for the conflict data, see http://www.prio.no/cwp/ArmedConflict. A conflict score of 0 means no conflict, 1 implies minor conflict, 2 is medium intensity conflict and 3 is war.