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WORLD CUSTOMS ORGANIZATION



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This edition of the *World Customs Journal*
is dedicated to the memory of
ALAN JOHN CHILDS
Australian Customs Service (Retd)
1938–2009

EDITORIAL



This edition of the Journal provides us with insights from an exceptionally diverse group of authors and includes contributions from North and South America, Asia-Pacific, Europe and Africa.

Fortunately, many of this edition's contributors were able to present their papers at the World Customs Organization's (WCO) annual PICARD (Partnership in Customs Academic Research and Development) conference held in Costa Rica, and were particularly successful in generating active discussion and spirited debate.

This year's conference addressed the impact of three significant issues on Customs and international trade: the economic crisis; regional trade agreements and the proliferation of such agreements; and climate change and environmental protection. Conference speakers included Michael Haughton, Maureen Irish, Santiago Ibáñez Marsilla, Chiza Charles N Chiumya, Carsten Weerth, Cezary Sowiński, and Shujie Zhang. I wish to thank these and other authors whose articles feature in this edition.

The PICARD conference also marked a significant milestone in the partnership between the International Network of Customs Universities (INCUI) and the WCO with the signing of a Memorandum of Understanding (MOU) between the two organisations. The MOU, which formally recognises the INCUI as the single point of contact between the WCO and those universities and research institutes that are active in the field of customs education and research, serves to formalise our efforts to jointly promote the academic standing of the customs profession. Pleasingly, the MOU signing followed the recent WCO decision to endorse guidelines for formally recognising university customs curricula. The text of the Guidelines, endorsed at the June 2009 WCO Council Sessions, is reproduced in Section 3.

The Editorial Board invites papers for the next edition of the Journal, the theme of which is 'collaborative border management'. We look forward to receiving papers that address collaboration between government agencies and the commercial sector, as well as national, regional and international collaboration among government agencies. I trust that you enjoy the current series of articles and look forward to your ongoing suggestions, contributions and support for what has emerged over a relatively short period as a truly global journal.

A handwritten signature in blue ink, appearing to read 'D. Widdowson'.

David Widdowson
Editor-in-Chief



Section 1

Academic Contributions

THE CASE FOR RISK-BASED AVIATION SECURITY POLICY

Robert W Poole, Jr

Printed with the permission of the OECD and based on Robert W Poole, Jr, 'Towards risk-based aviation security policy', Workshop 4: Ensuring a Secure Global Transport System, 2009 International Transport Forum, 26-29 May in Leipzig, Germany, www.internationaltransportforum.org/2009/forum2009.html.

Abstract

In the wake of the 9/11 attacks, governments in the United States (US), Canada, and Europe implemented additional aviation security measures. Although the rhetoric of risk-assessment is often heard, actual policy was driven largely by political imperatives to reassure frightened populations that air travel was still safe. The challenge in dealing with terrorist threats is always one of deciding where to invest scarce resources to maximum benefit. This inevitably requires difficult choices. The premise of this paper is that risk assessment provides an essential framework for making such choices and should be applied more consistently to aviation security.

The goal should be to wean legislators away from enacting mandates not based on risk analysis. Legislators should direct the national aviation security policymaker/regulator to address problems within some kinds of quantitative parameters. Details of making actual policy and resource-allocation decisions should be left to the aviation security agency. That agency, in turn, should be flexible in tailoring policies to changing threats and different situations at individual airports which vary enormously in type, size, and configuration.

While it seems likely that commercial aviation will remain a high-profile potential target, spending billions every year on static defences at airports is almost certainly a poor use of resources. Whether any kind of effort can succeed in educating elected legislators and opinion leaders to these realities is the most difficult challenge.

1. Introduction

In the wake of the 9/11 attacks, governments in the United States (US), Canada, and Europe implemented additional aviation security measures, among them strengthened (and locked) cockpit doors, 100 per cent screening of checked baggage, more thorough screening of passengers and their carry-on baggage, increased use of on-board security officers, increased attention to air cargo, and greater attention to airport access and perimeter control.

Although the rhetoric of risk-assessment is often heard, actual policy was driven largely by political imperatives to reassure frightened populations that air travel was still safe. In the US, the initial legislation created the *Transportation Security Administration* (TSA), but the vast majority of its budget has gone for legislatively mandated *aviation* security. No risk assessment preceded this statute's enactment, nor has this initial allocation of resources been changed significantly by the subsequent creation of the Department of Homeland Security (DHS), into which the TSA and many other agencies were transferred.

Economics reminds us that resources are always limited, and that resources allocated to X are not available for Y. The challenge in dealing with terrorist threats is always one of deciding where to invest scarce resources to maximum benefit. This inevitably requires difficult choices. The premise of this paper is that risk assessment provides an essential framework for making such choices and should be applied more consistently to aviation security.

2. Context: The problem of defending against terrorism

The sector-specific approach applied to aviation is an example of target-hardening. Because we live in a target-rich world, all conceivable targets cannot be hardened. Terrorists can readily shift from hardened to non-hardened targets. Thus, target-hardening is one of the 'asymmetries' between terrorists and their target governments. As Sandler, Arce and Enders (2008) point out, because terrorists hide among the general population, they present a target-poor environment to governments, compared with the terrorists' target-rich environment. And the costs to terrorists of wreaking destruction and creating fear are modest in comparison to the costs of governmental attempts to defend (everything) against terrorist attack.

The Maginot Line is a classic case of target-hardening that failed. As Intriligator points out, '...the most effective way to defeat transnational terrorism is not to try to protect vulnerable assets. That is the principal approach of the US DHS, which concentrates on protecting airplanes and airports, ignoring other potential targets. Such an approach is like generals fighting the last war, in this case the 9/11 attacks' (Intriligator 2008, p. 17).

Terrorists adapt to the creation of defences. In *Breaching the Fortress Wall*, RAND Corporation analysts sought to understand terrorist efforts to overcome defensive technologies (Jackson et al. 2007). They found that terrorist groups respond to the use of defensive technologies by:

- altering operational practices
- making technological changes or substitutions
- avoiding the defensive technology, and/or
- attacking the defensive technology.

The RAND researchers concluded that 'the historical record of terrorists' efforts to counter defensive technologies is not encouraging'. They found that 'for most technologies, the groups will adapt to circumvent them' (Jackson et al. 2007, p. 125) and the security forces will have to respond. Thus, technology cannot be 'the' solution to terrorism. They recommend that new defensive technology systems 'must be designed with terrorist countertechnology behaviors and past successes in mind' (Jackson et al. 2007, p. 126). In particular, they suggest designing flexibility into defensive technologies, and frequently testing them against 'red teams' trying to get past them.

3. An example of cost-effectiveness analysis in aviation security

A recent paper by Stewart and Mueller (2008) assesses the relative cost-effectiveness of several components of the TSA's aviation security program in the US. Their metric is the cost per life saved, as used in analyses of US safety regulations. The annual cost per life saved by a long list of such measures

(in 1995 dollars) ranges from a low of \$0.1 million for Federal Aviation Administration's (FAA) aircraft cabin fire protection standard to a high of \$6.78 trillion for Environmental Protection Agency's (EPA) hazardous waste listing for wood-preserving chemicals. The US Department of Transport uses a figure of \$3 million per life saved as a ceiling for acceptable regulatory costs.

Stewart and Mueller (2008) present a list of 20 TSA aviation security efforts, 14 of which apply in the airport environment and six that deal with in-flight security. They group the six in-flight measures into three: crew and passenger resistance, hardened cockpit doors, and Federal Air Marshals (FAMs). Consistent with much informal thinking within aviation security circles, they assume that in-flight efforts have made a considerable difference in reducing the probability that a plane will be hijacked and turned into a weapon. Hence, their starting assumption is that the in-flight measures account for 50 per cent of the reduced risk of a 9/11 aircraft takeover, with the 14 pre-board security measures adding up to the other 50 per cent. And as a starting assumption, they assume that the three in-flight measures are each equally effective—that is, each accounts for 16.67 per cent of the total reduced risk. They then factor in a generous 10 per cent probability that FAMs will be present on any particular plane. That reduces the risk reduction due to FAMs alone to 1.67 per cent.

How likely would another 9/11 attack be were these 20 security measures not in place? Stewart and Mueller (2008) postulate that in the absence of those measures, there would be a 9/11 repeat (with approximately 3,000 deaths) once every 10 years. Hence, they assume this set of measures prevents 300 deaths per year in the US. Using the best available information on the annual costs of each measure, they conclude that hardened cockpit doors cost \$800,000 per year per life saved, versus \$180 million per year for air marshals. Because several of their assumptions are somewhat arbitrary, they follow this with a sensitivity analysis that varies the probability of success of each measure, showing that the general results hold true over a wide range of assumed probabilities.

This author applied their methodology to the TSA's current pre-board security measures. Using their assumption that 50 per cent of the reduced risk of a 9/11 attack is due to the pre-board measures, the calculation yields an estimated cost of \$31.3 million per annual life saved for current pre-board airport security measures—more than 10 times the US Department of Transport standard, and 39 times the cost of hardened cockpit doors (Poole Jr. 2009).

While this approach obviously has its limitations, depending critically on assumptions about annual lives saved, the availability of reasonably good cost data coupled with sensitivity analysis makes it possible to estimate the *relative* cost-effectiveness of various aviation security measures.

4. US, Canadian and European approaches to aviation security

Aircraft hijackings in the late 1960s and early 1970s led the member states of the International Civil Aviation Organization (ICAO) to adopt Annex 17 to the Convention on International Civil Aviation (the Chicago Convention). Annex 17 requires each member state to designate a single agency to develop national policy on aviation security. Annex 17 has been amended several times in subsequent decades, in response to the emergence of new threats and trends. Following 9/11, Canada, the European Union (EU), and the US all adopted similar approaches to increased aviation security.

Prior to 9/11, aviation security was handled on a national basis in Europe. Airport security measures (mostly passenger and baggage screening) were introduced in the 1970s and 1980s in response to hijackings. Initially screeners were state employees, but the combination of airport privatisation and cost pressures led to the outsourcing of screening functions at most major airports by 2000. The destruction of Pan Am Flight 103 over Lockerbie, Scotland in December 1988, via a bomb in an unsuspecting passenger's checked bag, led to positive matching of passengers and bags in most European countries

by 1989. Germany implemented 100 per cent checked baggage screening at all 37 major airports by the end of 2002 (Hainmuller & Lemnitzer 2003). The United Kingdom and a number of other countries did likewise.

No EU-wide aviation security policy existed until 2002, when the European Parliament and Council agreed upon Regulation No 2320/2002 establishing common rules for civil aviation security. Those regulations were revised substantially in 2008, with Regulation No 300/2008 repealing and replacing the 2002 regulation. Consistent with ICAO Annex 17, each member state of the EU must have a national civil aviation security program, with a single agency in charge. Member states may adopt more stringent measures (on the basis of risk assessment), but the objective of No 300/2008 is to provide a 'common interpretation of Annex 17' within Europe (OJ L 97/72, 9.4.2008).

Canada's aviation security program also began as a response to hijackings in the 1970s. The government designated Transport Canada as its aviation security agency under ICAO Annex 17, and developed an airport security program based on ICAO recommendations for international airports (CATSA Act Review Secretariat 2006). Airlines were made responsible for aircraft security, with Transport Canada providing security standards for airlines and major airports (of which Transport Canada was then the owner). That agency also provided airport passenger screening. In-flight bombings in the 1980s led to stepped-up passenger checkpoint screening and physical inspection or X-ray of all checked luggage on international flights, plus the use of explosive detection system (EDS) units for checked baggage screening and the use of passenger bag matching on international flights. After 1992, when airports were divested by the national government to newly created airport authorities, responsibility for passenger and baggage screening shifted to airports and their airline tenants.

In the wake of the 9/11 attack, new legislation created a crown corporation, the Canadian Air Transport Security Authority (CATSA) which was given responsibility for providing passenger and baggage screening at 89 airports, as well as developing a program for screening airport employees. Transport Canada's role was changed by the 2002 legislation, refocusing it on security policy and regulation, while CATSA provided the aviation security services. CATSA opted to contract with private service providers for those functions at all 89 airports (CATSA Act Review Secretariat 2006).

US aviation security was likewise driven by the changing nature of the threat. Hijackings in the 1960s led the FAA to have airlines install walk-through metal detectors and X-ray machines for carry-on items at selected airports from which hijacked flights had originated. More hijackings in the early 1970s led to an FAA emergency rule requiring airlines to screen all passengers and carry-on bags. This rule was codified into law in 1974. Airports were made responsible for the security of their premises, while airlines were responsible for all passenger screening. Since the latter costs became new airline operating expenses, the airlines had an incentive to keep them as low as possible in the competitive environment following the Airline Deregulation Act of 1978. Hence, airlines outsourced screening to private security companies, at the lowest possible cost.

In response to the Pan Am 103 bombing, Congress ordered the FAA to research and develop an effective explosive detection system for checked baggage, and introduced background checks for new employees and contract personnel with access to secure areas. A subsequent White House Commission on Aviation Safety and Security recommended government funding for aviation security, licensing and performance standards for screening companies, background checks for all screeners and persons with access to secure areas, expanded testing of airport security, and comprehensive passenger-baggage matching (Armstrong & Pereira 2001). Congress also mandated (in 1996) that the FAA 'certify companies providing security screening and improve the training and testing of security screeners through the development of uniform performance standards for providing security screening services'. FAA's proposed rule was never finalised; hence, no such standards were in place by September 11, 2001 (Poole Jr. 2002).

Although none of the deficiencies of the passenger or baggage screening systems was implicated in the 9/11 attackers' success, the poor quality of screening became the main focus of attention as Congress debated legislation to beef up US aviation security. The resulting law 'federalized' airport screening by creating the TSA to carry out expanded passenger and baggage screening using government employees. It mandated 100 per cent screening of all checked bags for explosives by a certain date (which had to be extended by one year) (Brill 2003).

5. Comparison and assessment of current aviation security policies

Who pays for aviation security?

The Canadian system represents the most transparent case. An Air Travelers Security Charge is applied to all airline tickets, and its proceeds fund 100 per cent of the budget for CATSA, which handles airport security and the funding of air marshals. These funds also paid for strengthening the cockpit doors of Canadian airliners and pay for the added numbers Transport Canada security inspectors.

Thus, Canadian policy on transportation security appears to be mode-specific, that is, the costs of protecting a mode of transportation are borne by the users of that mode. (Whether Canada is applying that policy consistently to other modes is beyond the scope of this paper.) Canadian airport and airline trade associations argue that 'aviation security is a "national defence" issue and as such should be funded from general revenues' (Canadian Airports Council 2006). But after making this point, their recommendations (during a five-year review of CATSA in 2006) all focus on making the present funding mechanism more transparent and responsive to changing needs.

In Europe, the pattern varies by country. In the United Kingdom, the major airports (all of which are commercialised, with most now in the private sector) are responsible for all airport security, at their own expense. These costs get factored into the cost base on which they charge airlines for airside and landside services. Germany has a federal aviation security tax which is added to airline tickets, but that tax covers only a portion of the capital and operating costs of airport security, the balance of which are paid for out of airport budgets. Some German airports have been privatised, while others remain owned by some combination of state and municipal governments. Thus, ultimate responsibility for aviation security costs in Europe seems to be a mix of passenger taxes and airport costs, with the latter being absorbed by airline charges. Although this is largely mode-specific, it is less transparently so than in Canada.

The US presents the most complex assortment of funding sources. By 2007 the fraction of TSA's aviation budget that was provided by security taxes on airlines and passenger tickets slightly exceeded 50 per cent. The balance of TSA's funding comes from the federal government's general fund. In addition, airports themselves are responsible for access control and airside security, costs which become part of their cost base and are passed along to airlines via airport rates and charges. Cost estimates for those portions of aviation security expense are not readily available. But because of significant federal general-fund support of TSA's aviation security budget, the US departs significantly from the fully mode-specific funding approach of Canada and the increasingly mode-specific funding approach of EU countries.

There is some merit in the argument that transnational terrorism is a threat to entire societies and therefore that measures taken against it could be considered one component of national defence and hence paid for out of general government revenues (as airline and airport groups generally argue). However, if some components of a society present larger targets to terrorists, there is some justification for deciding that those who make use of that component should bear the costs. In this sense, security expenses can be seen as analogous to insurance. While airlines and airports object to the mode-specific approach, in fact they function as advocates for greater cost-effectiveness in aviation security policy, since they and their

customers must bear the costs. However, the case for mode-specific funding being applied to aviation is only fair (in the sense of not creating distortions in mode-choice for customers) if the same principle is applied to the security costs of other transport modes.

Who provides aviation security?

All OECD members have designated a single national agency to be responsible for aviation security. Those agencies are responsible for making policy decisions about security and for regulating the various entities involved in aviation—airports, airlines, pilots, etc. But which party actually delivers various security functions differs considerably.

Canada is unique in having created a crown corporation to carry out most aviation security functions: passenger and baggage screening, access control, biometric identity cards, etc. In Europe, these functions are usually the responsibility of each airport. The US is unique in having a decidedly mixed system. By law, TSA must carry out passenger and checked-baggage screening at nearly 450 commercial airports, despite TSA also being the national aviation policymaker and regulator. Yet nearly all the remaining airport security functions—access control, perimeter protection, terminal-area policing, etc.—are the responsibility of the airport, under TSA's regulatory oversight. Thus, the TSA combines regulation and service provision within a single entity; a troubling conflict of interest which violates the principle of arm's-length regulation. And TSA's responsibility for providing some but not all airport security functions means divided airport security when unified security and single-point responsibility would be wiser.

One of the largest contrasts in the provision of security functions is the use of private security firms for passenger and baggage screening. Where this function has been devolved from the national policymaker (as in Europe and Canada), the inherent advantages of outsourcing have led to its widespread use. But Congress's over-reaction to the low-performing pre-9/11 airline security contractors led it to mandate a federal government screening workforce, except for a small pilot program under which five airports were permitted to use TSA-regulated private security companies for screening. In theory, after two years of TSA provision at all other airports, those airports could ask TSA to leave and replace them with a TSA-approved security company, selected by TSA and assigned to that airport. Despite better performance by security companies at the five pilot-program airports, no airport has asked TSA to leave (perhaps because TSA is also its security regulator).

An important advantage of outsourcing passenger and baggage screening is flexibility. Thanks to airline start-ups, mergers, and failures (as well as seasonal variations in scheduling), the numbers of emplaned passengers at US airports fluctuate by 10 to 20 per cent per month at most airports, with some smaller airports experiencing much larger monthly changes (Poole Jr. 2006). Yet the TSA's allocation of screeners to airports is done on an *annual* basis, making it difficult to match staffing to workload. Outsourcing facilitates that kind of short-term flexibility, as well as permitting pay scales that match regional differences in living costs.

But the larger, long-term advantage of outsourcing was noted in the RAND Corporation paper on how terrorists adapt to defensive technologies. Over time, terrorists may avoid the technology or alter their operational practices. Five years from now, a 43,000-person civil-service workforce of TSA airport screeners may no longer be appropriate, due either to changes in terrorist methods of operation or to improved technologies. It would be far easier to downsize outsourced screening workforces—and redirect the resources to higher-priority uses—than to reduce the number of civil servants expecting something akin to lifetime tenure.

How risk-based are current security policies?

ICAO's Annex 17 sets forth the minimum aviation security standards expected of all member states (ICAO 2006). Supplementing Annex 17 is the *Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference*, commonly referred to as ICAO Doc 8973. It provides detailed procedures and guidelines on how states may go about implementing the provisions in Annex 17, but it is guidance, not a standard.

Standard 3.1.3 of Annex 17 states that each contracting state 'shall keep under constant review the level of threat to civil aviation within its territory, and establish and implement policies and procedures to adjust relevant elements of its national civil aviation security program, *based on a security risk assessment* carried out by the relevant national authorities' (emphasis added). As interpreted by the Review Panel on CATSA in 2006, this establishes two basic principles for aviation security policy:

- '[I]t must be intelligence-led, based upon up-to-date threat assessments and resilient enough to adapt to new threats as they emerge.
- 'Risk analysis and assessment are the basis for effective use of security resources' (CATSA Act Review Secretariat 2006).

But Annex 17 goes on to provide standards for pre-board screening of passengers and baggage, the quality of screeners and periodic testing of them, passenger-bag reconciliation, cargo security controls, access control via secure identification and random screening, and airport perimeter control. Other Annexes provide for secured cockpit doors, procedures for dealing with disruptive passengers, and air marshals. In other words, there is tension between the implication that various inputs and methods *must be used* and the directive that decisions should derive from risk analysis based on up-to-date intelligence.

Canada's 2006 Advisory Panel review of the CATSA includes a section called 'Risks and Layers: Envisioning Aviation Security'. It cites the ICAO rhetoric and notes that '[Security] resources, financial and human, are not unlimited and should be allocated according to assessed risk' (CATSA Act Review Secretariat 2006). It notes that Canada's Auditor General the previous year had insisted that a risk-based approach is desired and expressed disappointment that Transport Canada 'has not fully implemented formal risk management' (Auditor General of Canada 2005). The Advisory Panel report goes on to say that in its presentations to the Panel, 'CATSA referred to its concept of security screening as risk-based', and that 'Priorities must be established, and these should be based on assessments of the relative level of risk'.

But airports and airlines told the Panel that CATSA should get more serious about a risk-based approach. In passenger screening, it should 'focus on higher-risk passengers, rather than on the objects carried by all passengers'. They also called for better background vetting, so as to streamline the screening that takes place at the airport, 'such as [via] a Registered Traveler Program' (CATSA Act Review Secretariat 2006).

In Europe, Article 4 of EC No. 300/2008 permits member states to 'adopt alternative security measures that provide an adequate level of protection on the basis of a local risk assessment'. By being presented in the context of criteria that would allow states to 'derogate from the common basic standards,' this wording implies that less-stringent protection may be provided if justified by lower levels of risk or certain locations, aircraft sizes, or infrequency of operation.

According to European airport and airline groups, efforts to implement a truly risk-based system are still at an early stage. In October 2006, the Airports Council International Europe (ACI Europe) and the Association of European Airlines (AEA) created a joint effort 'to address shortcomings of the current system'. In its news release announcing the launch of the European Strategic Partnership for Aviation Security (ESPAS), the Director General of ACI Europe said that 'Any new security rule should focus

specifically on the threat or risk that needs to be eliminated, taking account of the impact on passenger mobility and convenience, operations, and cost' (ACI Europe & AEA 2006). However, as of October 2008, the Policy Manager for ACI Europe stated that 'We are still in the early process of a truly risk-assessment-based system in aviation security in the EU' (ACI Europe 2008).

In the US, in 2005, incoming DHS Secretary Michael Chertoff announced a reorganisation of the agency, calling for a more risk-based approach to security. Though praised by DHS's former Inspector General and supported by then new TSA Administrator Kip Hawley, very little had changed by the end of 2008 when the Obama administration took over. In June 2008, the Government Accountability Office (GAO) published a summary of a forum in which 25 experts discussed applying risk management to homeland security (Rabkin 2008). They considered the Coast Guard (but not TSA) to be one of the few federal government agencies that had effectively incorporated risk management principles into its decision-making.

6. Toward a more risk-based approach

Aviation security officials in Canada, Europe and the US have all professed the importance of risk assessment, but thus far there is little evident use of risk assessment to separate cost-effective from non-cost-effective policies. This section suggests how a more risk-based approach to airport security might proceed.

Risk-based passenger and baggage screening

The most important change would be to alter the present *de facto* policy of treating all passengers and bags as needing equal scrutiny. Instead, the system would be based on applying somewhat different procedures to different passengers and their bags, based on an assessment of their relative riskiness.

Three tiers of passengers. The basic premise is that airport screening should identify and isolate dangerous persons, not dangerous objects *per se* (Poole Jr 2006). The challenge is to keep those persons from causing harm, either in the terminal area or to the planes themselves. Terrorists can cause harm in many ways: getting on board with the aim of hijacking, getting on board as a suicide bomber, putting explosives into checked luggage but not boarding, or targeting concentrations of passengers in terminals. Current policies devote most resources to preventing would-be hijackers from boarding with weapons. Yet strengthened and locked cockpit doors (and changed protocols for crew response), have greatly reduced that threat. Far less resources are spent on securing terminal lobby areas and the ramp area where planes park. Thus, current policy downplays the threat of suicide bombers targeting crowds in terminals and the threat of bombs being smuggled onto planes from the ramp.

The proposed risk-based approach would include greater security guard presence in terminals, in ramp areas, and around the airport perimeter. And it requires separating passengers into at least three defined groups, based on the quantity and quality of information about each:

- low-risk passengers, about whom a great deal is known
- high-risk passengers, based either on no knowledge or on specific, negative information
- 'ordinary' passengers, mostly infrequent flyers and leisure travellers.

'Low-risk' passengers are defined as those who possess a government security clearance or are members of a Registered Traveler program (via passing a background check and being issued a biometric identity card). Passengers in this group would go through express lanes at checkpoints, with something like pre-9/11 protocols. As a safeguard and deterrent, a percentage of these people and their bags would be randomly selected for 'ordinary' passenger screening, and this policy would be well-publicised.

'High-risk' passengers include those with no paper trail, about whom so little is known that the safest thing to do is to assume the worst and do a thorough screening of both person and bags. Everyone in this group, in other words, would receive a more rigorous version of today's 'secondary' screening, to include both explosive-detection screening of their carry-ons and either see-through scanning to detect non-metallic objects or a thorough pat-down search. The same protocol would apply to those whose names appear on government-maintained watch lists.

'Ordinary' travellers are those in between the other two categories. These people would receive something like today's level of passenger screening (but with a better-justified list of banned objects). A fraction of this group would be randomly selected for secondary screening, as described above.

Identifying low-risk travellers. The original proposal for a 'trusted traveler' approach appeared in an article published two months after 9/11 (Levine & Golaszewski 2001). The concept was first subject to detailed analytical scrutiny by operations researchers at Carnegie Mellon University in 2003 (Foster et al. 2003). Based on their simulation of its operation at Pittsburgh airport (PIT), 40 per cent of average daily passengers would apply and qualify for the program. Since 40 per cent fewer people would be using the regular lanes, their average processing time would drop from 19.5 to 12.1 minutes. The paper estimated that first-year benefits would exceed first-year costs by \$2 million at PIT.

TSA eventually allowed something called a Registered Traveler program to be introduced, but the only background check it carried out was to check applicants against its watch list—the same procedure applied to every air traveller prior to issuance of their boarding pass. This enabled TSA to maintain that Registered Traveler members still required the same level of checkpoint scrutiny as other air travellers. TSA implied that the cost of a 'real' background check would be prohibitive. Yet several million US aviation workers have been subjected to criminal history background checks since 9/11, as a condition of being allowed access to secure areas of the airport on a regular basis. This program is operated by the American Association of Airport Executives (AAAE), in cooperation with the Federal Bureau of Investigation, at a cost of \$27 per person (AAAE 2008). At nearly all US airports, such airport workers do not have to pass through metal detectors or have their tools X-rayed when entering secure areas. Thus, a background check that TSA deems sufficient to allow unescorted and unscreened airport workers access to planes is deemed insufficient to allow Registered Traveler members to pass through a streamlined version of checkpoint screening, as envisioned in the original Registered Traveler concept.

Separating ordinary and high-risk passengers. Once low-risk passengers have been self-selected out, the remaining task is to separate high-risk passengers from all the rest. One tool for doing this is a government-maintained watch list, continuously updated, against which all airline passenger reservations would be checked by the national aviation security agency in real time. In the US, such a program is scheduled for implementation in 2009, under the name Secure Flight. In the US until 2009, this was carried out by the airline-operated Computer Assisted Passenger Prescreening System (CAPPS), which dates from pre-9/11 days. Such systems use algorithms to verify the passenger's identity, and then, to look for patterns that might suggest high risk.

To supplement the above tools, and to deal with lobby-area persons not holding tickets (and therefore not passing through the screening checkpoints), a technique called 'behavioral profiling' is being used at Israeli airports (Davis, Pereira & Bulkeley 2002), Boston's Logan Airport, and Las Vegas casinos. The general idea is to unobtrusively monitor people's behaviour, looking for suspicious activities, to be followed up by questioning by security personnel. Many other airports maintain either covert or highly visible law enforcement patrols within airport premises, including lobby areas and airside areas.

Redesigning passenger checkpoints. Security checkpoints for a risk-based system would have two sets of lanes, one set for Registered Travelers and the other set for all others. The proportion of each would have to be varied over time, depending on the fraction of daily originating passengers who were Registered Travelers program members. Space would be required on the approach to the Registered

Travelers lanes for kiosks at which members would insert their biometric identity cards to gain admission to the line for these lanes. On the sterile side of the checkpoint, additional space would be required for secondary screening portals to check the bodies and carry-on bags of selectees for explosives and potential weapons. All high-risk passengers would automatically go through secondary screening. Boarding passes would be coded electronically, not visibly, so that a selectee would not know whether he/she had been selected by an algorithm or at random.

Redesigning checked baggage screening. Neither Canada nor most European countries requires 100 per cent of checked baggage to be scanned by costly EDS machines. But where that mandate applies (as in the US), the risk-based model would reduce the size and cost of checked baggage screening. The bags of Registered Traveler members could be screened via two-dimensional X-ray machines, and would only move on to the more costly screening if a possible problem was detected by the initial X-ray.

RAND Corporation studies of the impact of a Registered Traveler program on the size and cost of EDS installations at large and medium US airports estimated the total cost of various levels of EDS deployment. These studies included the capital and operating costs of the EDS machines and the extra time currently of passengers getting to the airport early enough to ensure that their flight is not delayed due to slow bag processing. Without a Registered Traveler program, the nationwide number of EDS machines was 6,000. But with a Registered Traveler program that required EDS screening of 50 per cent of all bags (all bags of non-Registered Traveler members plus one-sixth of the bags of daily passengers who are Registered Traveler members), the optimal number of EDS machines declined to about 2,500 (Shaver & Kennedy 2004). That's a very large difference in space requirements and in capital and operating costs.

Air cargo security

In sharp contrast to the non-risk-based approach to airport screening followed in Canada, Europe and the US, a risk-based approach to air cargo has been used since 9/11 in these jurisdictions. It parallels the way cargo is dealt with in the maritime system and in cross-border trucking and railroads. It relies on a combination of intelligence information, 'known shippers,' and random screening.

The enormous volumes of cargo and the very high costs in both time delays and equipment that would be required if all cargo had to be physically screened seems to underlie the acceptance of risk-based approaches as a practical reality. Yet when it comes to belly cargo on passenger planes, the inconsistency between the US policy of requiring 100 per cent of all checked baggage to be screened by the most costly equipment (EDS) while belly cargo sitting next to those bags in the cargo hold is largely unscreened has led to calls to close the belly cargo 'loophole.'

In Canada, CATSA originally had no mandate to screen cargo, but in 2006 the government allocated \$26 million over two years to design and test an air cargo security initiative, while Transport Canada was developing an Air Cargo Security Strategy in consultation with aviation stakeholders. In Europe, the new EC No 300/2008 calls rather vaguely for member states to determine 'conditions under which cargo and mail shall be screened or subjected to other security controls, as well as the process for the approval or designation of regulated agents, known consigners, and account consigners'.

The struggle between risk-based and 100 per cent physical screening approaches was highlighted in the US when Congress included an air cargo measure based on the latter approach as part of the 9/11 Commission Act of 2007. It calls for TSA to physically screen all belly cargo, with 50 per cent of this to be accomplished by February 2009 and 100 per cent by August 2010. Airlines and airports objected that enforcing such a requirement at airports would be very difficult. Since belly cargo for wide-body planes often arrives on pallets, which are far too large to screen using baggage screening equipment, large new facilities would be required to house costly new equipment. Moreover, the time required to physically

screen all such cargo would disrupt schedules, undercutting the rationale for shipment of high-value, time-sensitive cargo by air.

In response, TSA has developed the Certified Cargo Screening Program (CCSP), which would distribute most of the screening function to various points in the supply chain. Shippers and freight forwarders may opt to become Certified Cargo Screening Facilities, which would screen and seal shipping crates, pallets and/or containers. The sealed boxes would be delivered by them to the airport by certified personnel, to be turned over to the airlines for loading. In effect, this represents an elaboration of the previous 'known shipper' program. Under that program, shippers and freight forwarders who met certain TSA requirements (mostly about supply-chain integrity and control) were deemed to be safe originators of air cargo, whose packages required no more than occasional random screening at the airport, supplemented by periodic vetting of the shippers by TSA inspectors.

An initial 2007 cost estimate from the Congressional Research Service was \$3.7 billion over its first 10 years (Elias 2007). In 2008, the Government Accountability Office, using newer information, estimated the total cost of just the equipment at \$4.5 billion (Berrick 2008). To that must be added the ongoing costs of staff doing the screening, paperwork, and transportation plus the cost of expanded TSA staff to inspect these 12,000 sites. For context, US belly cargo consists of about 250 million individual packages per year, providing \$4.4 billion in airline revenue (Poole Jr 2008).

In October 2008, the US and the EU announced an agreement under which the EU agreed to comply with the US deadlines for belly cargo screening on flights from EU countries to the US (that is, 50 per cent screened by February 2009 and 100 per cent by August 2010). It provides that the EU 'will use the same screening equipment, provide the same training to screeners, and impose the same security requirements on facilities where cargo is screened' (Sullivan 2008).

Thus, recent developments appear to be moving air cargo (at least belly cargo) away from the former risk-based approach and toward the more prescriptive 100 per cent approach applied to passenger and baggage screening. In other words, the discrepancy in policy between belly cargo and checked bags is being resolved by moving away from a truly risk-based approach. This may increase pressure from some quarters to apply similarly costly and non-risk-based approaches to all-cargo planes and later to other modes of shipping.

7. Summary and conclusions

Defending target-rich free societies against terrorism is inherently difficult. On a macro level, it seems unlikely that terrorism can be eliminated in a permanent sense; the inherent asymmetries will likely make free societies attractive targets for one or another terrorist group indefinitely. We also know that terrorists learn from experience, and can change tactics and targets in response to defensive measures. Therefore, defensive measures must be dynamic and flexible, rather than static and predictable.

Most current aviation security programs in Canada, the EU and the US are responses to previous terrorist attacks, rather than more broadly based protections against a range of possible future threats. A number of such programs (for example, air marshals and 100 per cent EDS screening of checked baggage and belly cargo) would likely not pass a test of relative cost-effectiveness, such as the annual cost per life saved. Yet risk assessment, though much talked about as providing a sound basis for setting security priorities and allocating resources, seems to be very difficult to put into practice, despite its potential for getting significantly more value from whatever amount of resources is available in a country for aviation security.

One possible incentive for a more risk-based policy is mode-specific security funding, for example, that the costs of aviation security be paid for by aviation system users. This gives that user group an incentive

to monitor the costs and cost-effectiveness of security programs that affect it, serving to some extent as a counter-weight to politicians' tendencies to impose costly but ineffective programs. In this regard, Canada most closely adheres to this principle in aviation, with the US departing the most from it and Europe in between.

In terms of flexibility, the EU countries have devolved airport security functions most completely to the airport level (under national government regulatory supervision), permitting resources to be tailored to need and, thanks to outsourcing, permitting changes in workforce levels in response to changing threat and demand levels. Canada makes wide use of outsourcing, but in a centralised model that does not take account of regional cost differences. The US is least flexible, with all passenger and baggage screeners (except for a handful employed by highly regulated contract firms) working directly for the federal government. In addition, the US model results in fragmented security responsibility at the airport level, with the TSA providing screening services and the airport providing all other security functions.

Rhetoric in all the countries examined here supports risk-based security, and indeed, that is largely the practice in all forms of goods movement, including air cargo. Perhaps that is because cargo is much less visible to the public, and because the consequences for supply chains would be so great if passenger-type security measures were applied to all goods movement. The GAO's expert panel on strengthening the use of risk management principles was asked to identify the 'key challenges' to doing so (Rabkin 2008). The number one challenge was to 'Educate the public about risks and engage in public discourse to reach consensus on an acceptable level of risk'. Number two was to 'Educate policymakers and establish a common lexicon for discussing risk' to counteract political obstacles to risk-based resource allocation.

The goal should be to wean legislators away from enacting mandates not based on risk analysis. Legislators should direct the national aviation security policymaker/regulator to address problems within some kinds of quantitative parameters (for example, the US Department of Transport's \$3 million per life saved measure). Details of making actual policy and resource-allocation decisions should be left to the aviation security agency. That agency, in turn, should be flexible in tailoring policies to changing threats and different situations at individual airports which vary enormously in type, size, configuration, etc.

No security policy should be pursued 'at all costs,' since resources are always limited. Likewise, all possible targets cannot be hardened to any appreciable degree, without bankrupting a country. While it seems likely that commercial aviation will remain a high-profile potential target, spending billions every year on static defences at airports is almost certainly a poor use of resources. Whether any kind of effort can succeed in educating elected legislators and opinion leaders to these realities is the most difficult challenge.

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MARITIME TRANSPORT SECURITY REGULATION: POLICIES, PROBABILITIES AND PRACTICALITIES

David Widdowson and Stephen Holloway

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Abstract

This paper examines the global regulatory environment that has emerged as a direct result of the events of September 2001, with particular reference to maritime shipping and container transport security. In examining the range of regulatory initiatives that have been introduced by national, regional and international policy makers, it analyses the appropriateness of the various policy responses from the perspective of risk management and commercial practicality. In doing so, the authors identify key features of an effective regulatory compliance regime, and the likely impact of specific policies on both regulatory control and trade facilitation.

The paper concludes that many government responses to the international security threat merely lead to an increase in the regulatory burden on honest traders, and achieve little in the way of enhancing their ability to identify potentially high risk consignments. It also identifies the need for a balanced and cost effective approach to regulation in which the elements of both enforcement and incentives to comply with regulatory requirements are present, in preference to a prescriptive approach that is likely to be not only less cost-effective but also more disruptive to commercial operations.

Context

The regulatory focus on the international supply chain changed dramatically on September 11, 2001 from one that was generally facilitative to one that placed the security of the supply chain at the centre of border management policy.

Border control, of which supply chain security is an element, has always formed part of the regulatory continuum, and since the late '80s there has been a global effort on the part of regulators to achieve an appropriate balance between facilitation and regulatory control. However, there is clear evidence to suggest that following 9/11 the balance has been heavily tilted towards regulatory intervention (Widdowson 2006).

More significantly, whereas border control issues have traditionally centred on commercial illegality (for example, duty evasion) or smuggling of prohibited goods (for example, narcotics), the events of 9/11 highlighted the potential for the supply chain itself to be utilised by terrorists to cause physical and economic damage, and a proliferation of security-focused control regimes followed.

Indeed, supply chain security promptly became the priority issue, and with the three-day closure of United States (US) borders, the economic impact of any breakdown in the supply chain became obvious to everyone involved in international trade. A number of initiatives, ostensibly introduced to improve the security of the supply chain, were developed: firstly, by the United States and subsequently, by other countries and international organisations. The US initiatives have tended to lead the supply chain security agenda and that continues to be the case, although with increasing controversy and considerable resistance from other countries and the private sector. The highly criticised ‘10+2 Rule’ and the 100 per cent container scanning initiative are cases in point.

Such rigorous opposition raises the question of whether the current nature and extent of supply chain regulation are appropriate and whether the supply chain is becoming over-regulated to the detriment of the efficiency and effectiveness of both government and business. This paper analyses the appropriateness of the diverse regulatory regimes from the perspective of risk management and commercial practicality.

Elements of effective regulation

Regulatory compliance management

Models for managing regulatory compliance are generally considered to fall into two broad categories: normative and rationalist (INECE 2009). The normative model advocates the encouragement of voluntary compliance through cooperation, support and the positive reinforcement of compliant behaviour. The rationalist model, on the other hand, advocates an enforcement approach, the focus of which is the deterrence of non-compliant behaviour by punitive means.

In practice, regulatory agencies will generally adopt compliance management strategies that incorporate both normative and rationalist elements. These elements effectively represent opposite ends of a compliance management continuum that seeks, firstly, to encourage voluntary compliance but which includes a range of punitive measures that may be applied in the event of non-compliance. In such circumstances, the severity of the measures applied should appropriately reflect the level of non-compliance, in other words ‘let the punishment fit the crime’.

A number of issues need to be considered when determining the best ‘mix’ of elements that should be present in a regulatory framework. These include the need to achieve a cost-effective outcome consistent with the desired policy outcome; the nature of the operational environment that is being regulated including the commercial practices that apply; and the extent to which the regulatory requirements are likely to impact on the operational effectiveness of the activity being regulated.

Consequently, most compliance management regimes will comprise a combination of regulatory approaches, with the specific components of a particular scheme being dependent on the scope of the risk that is to be treated and the demographics of the regulated population. Parker describes this approach as ‘compliance-oriented regulation’, in which the elements of both enforcement and incentives are present:

It is a holistic approach toward regulation in which mixes of regulatory strategies appeal to the complexity and variety of motivations underlying compliance. The emphasis is on the substantive policy objectives of the regulation and whether the regulatory policy instruments chosen are capable of accomplishing those objectives, not on compliance with rules that may or may not be effective at achieving the desired result (Parker 2000, p. 534).

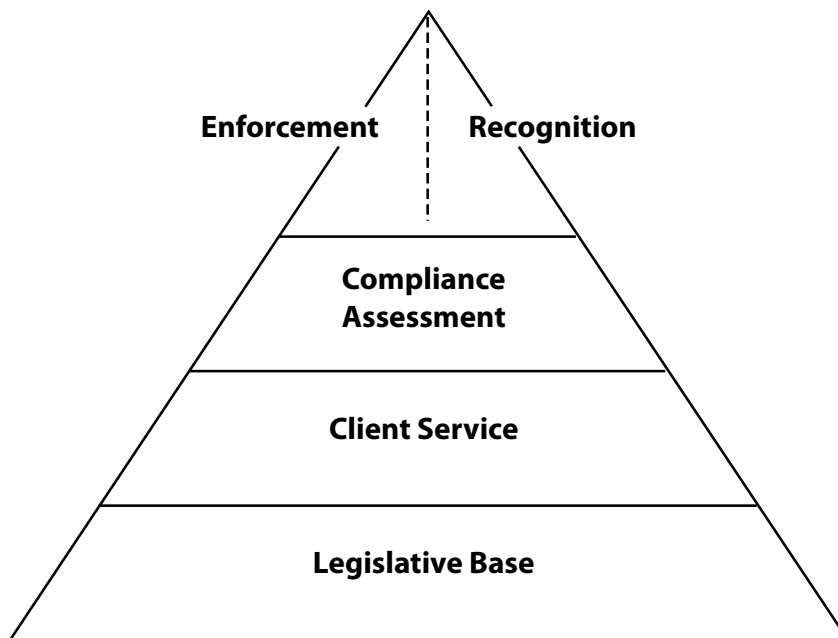
Legislative base

Nevertheless, rules are at the core of any regulatory regime, and the role of the regulator is to ensure compliance with those rules. The point that Parker makes is that there needs to be a clear understanding of

what the policy makers are trying to achieve, and that when developing an associated regulatory regime, the achievement of the policy objective must remain in focus. Compliance with poorly constructed rules will do little to achieve such policy objectives. It is therefore incumbent upon regulators to continually question the validity of the rules that have been established in order to ensure their ongoing relevance to the policy aim. In the post 9/11 political climate, however, it takes a very brave person to question the validity of rules that have ostensibly been designed to mitigate international transport security risks. This issue will be addressed later.

Several models have been developed to identify better practice in regulatory compliance management, all of which emphasise the need for an effective legislative base. A simplified model¹ is shown in Figure 1. An appropriate legislative framework is an essential element of any regulatory regime since the primary role of the regulator is to ensure compliance with the law. Regardless of the compliance management approach that it is supporting, the legislative framework must provide the necessary basis in law for the achievement of the range of administrative and risk management strategies which the administration chooses to adopt.

Figure 1: Simplified Compliance Management Pyramid



Source: Based on Widdowson (2004)

Informing the regulated community

An appropriate range of client service strategies, including effective consultation arrangements and clear administrative guidelines, is necessary to provide the commercial sector with the means to achieve certainty and clarity in assessing their liabilities and entitlements. In 1997, when calling for an urgent international process of regulatory reform, the Organisation for Economic Co-operation and Development (OECD) stated that such reform should include more flexible approaches to regulatory compliance management, with the longer-term goal of shifting governments 'from a culture of control to a culture of client service' (OECD 1997).

Such a cultural shift required regulatory authorities to accept the view that strategies other than control strategies represent legitimate means of mitigating the risk of non-compliance, and are critical to achieving an effective balance between facilitation and regulatory intervention. Indeed, it is of critical importance to ensure that the commercial sector is provided with the ability to comply with regulatory requirements. They need to know the rules. If they do not know, how then can they be expected to comply? While ignorance of the law may be no excuse, it explains many instances of non-compliance and, consequently, the need to provide meaningful advice to those who are being regulated is essential.

Compliance assessment

At the third tier of the pyramid (Figure 1), the elements of compliance assessment come into play which in the maritime transport context, generally include data screening, documentary checks, risk-based scanning and physical examinations as well as pre- and post-shipment audits and investigations. Effective compliance assessment must include strategies that are designed to identify both compliance and non-compliance, which addresses one of Parker's key concerns, that is, that regulatory authorities tend to focus solely on the detection of non-compliance. The reason for the traditional focus on non-compliance stems from the fact that, for most regulators, the only recognised 'result' of compliance assessment activities has been the identification of non-compliance, together with the associated enforcement action such as prosecution and/or monetary sanctions (Widdowson 2006). The saying, 'if it isn't counted, it won't get done' applies aptly to this situation. In other words, if management focus is solely on the identification of non-compliers, the identification of compliant traders will not be considered to be important by their staff.

In recent times, there has been an increased emphasis on a 'partnership' approach to assessing and achieving regulatory compliance, and a number of approaches that have been introduced in the transport security environment are discussed later. The government/industry partnership concept is based on the premise that companies with a good record of compliance require less regulatory scrutiny than those with a history of poor compliance, or those about which little is known. The partnership approach to security has also been adopted in other transport sectors such as the air transport industry's Known Shipper Program,² and its potential application to air passengers is also a topic for debate (Poole 2008).

A key element of the strategy seeks to provide highly compliant companies with certain benefits such as facilitated clearance arrangements, an entitlement to self-assess, and reduced regulatory scrutiny, which provide compliant companies with the incentive to demonstrate their commitment to comply with regulatory requirements.

The effectiveness of such arrangements hinges on a healthy working relationship between government and industry, based on partnership and trust, that is, a relationship which reflects a mutual commitment to accountability and improving compliance. Such partnerships must be a two-way proposition with clearly identified costs, and benefits and responsibilities for both parties. Consistent with the cooperative, consultative approach which a partnership program is intended to achieve, industry should be invited to play a major role in identifying the range of incentives which may be made available under such an arrangement.

Provided such programs can achieve mutual benefit for both government and industry, the partnership approach is destined to succeed. However, if the anticipated benefits fail to materialise for either of the parties, the relationship is likely to be less than successful, particularly when would-be participants have made a significant investment in the initiative. Given that one of the parties to such a partnership is a regulatory authority, it is hardly surprising to learn that the benefits which fail to materialise are generally to the detriment of industry (Widdowson 2005).

Enforcement and recognition

In the process of assessing the level of compliance among industry players, regulators encounter two situations: compliance and non-compliance. The non-compliance spectrum will range from innocent mistakes to blatant fraud. If the error nears the fraudulent end of the spectrum, some form of sanction will need to apply, including administrative penalties or, in the more severe cases, prosecution and licence revocation.

Before determining the need for or nature of a sanction, however, it is important for regulators to identify the true nature of the risk by establishing why the error has occurred. For example, the error may be the result of a control problem within the entity, due to flawed systems and procedures, or it may be the result of a deliberate act of non-compliance. The type of mitigation strategy that should apply in such situations will depend on the nature of the identified risk and unless the act is found to be intentional, it may be appropriate to address systemic problems within the entity, or to provide that entity (or perhaps an entire industry sector) with advice on particular compliance issues, or provide formal clarification of the law through binding rulings or other means (Widdowson 1998).

Measuring compliance

Determining the effectiveness of the regulatory approach to reducing non-compliance is one of the difficulties confronting regulators. At the centre of this challenge is the quality of information and the resources to monitor compliance. It may be difficult or even impossible to obtain accurate and timely data about compliance, and even more difficult to establish a trend with respect to that data particularly if there is no compliance baseline against which the data can be measured. For example, compliance may be improving but without a baseline, it will be difficult to identify that improvement and even more difficult to determine if it is the result of a specific regulatory approach or not, particularly if the nature of regulation is changing at the same time. The incorporation of relevant compliance indicators and an evaluation process into the regulatory scheme at the outset is therefore very important.

Regulation of Small and Medium-sized Enterprises (SME)

Another challenge for regulators is to avoid disadvantaging small and medium-sized enterprises (SMEs), which generally rate poorly in 'compliance' because they lack the capacity to comply, often due to a lack of resources or knowledge. An example from environmental regulation that illustrates this point is the United Kingdom (UK) SME Environment Survey conducted in 2003 (NetRegs 2003). That survey noted that SMEs comprise more than 99 per cent of the 3.7 million businesses in the UK and generate about 60 per cent of its commercial waste and as much as 80 per cent of the pollution in England and Wales. Yet 82 per cent of the SMEs could not name, unprompted, any environmental legislation, and 77 per cent had not taken any measures aimed at reducing harm to the environment.

SMEs are significant participants in international trade but are not necessarily well catered for in the various supply chain security initiatives that have been implemented to date. In many countries, they constitute over 95 per cent of market participants and account for more than half of employment in the national economy as well as in the Gross Domestic Product (GDP). With respect to international trade, parties involved in the international movement of cargo are heavily represented by SMEs.

The World Customs Organization (WCO) recognised quite early in its development of the SAFE Framework that it should be implemented in a transparent and predictable way 'in order to provide a level playing field for both SMEs and large companies'. The WCO also noted that SMEs need 'adequate support, training and guidance to build their capacity for security requirements' and that they require 'tangible benefits in return for being certified as Authorised Economic Operators (AEO) by meeting a set of minimum security standards in the Framework' (WCO 2004).

Management-based regulation

Some of the issues confronted by regulators when designing a cost-effective regulatory scheme, including the importance of acknowledging compliance diversity within the regulated population, have already been identified in this paper. A sub-set of compliance-orientated regulation that seeks to address these issues and the challenges associated with risk management is known as ‘management-based regulation’. This approach provides greater flexibility to business in meeting regulatory and risk management objectives and is focused on outcomes, the importance of which has been discussed previously.

Management-based regulation is a concept that leverages business knowledge and experience to achieve the regulatory objective: ‘firms are not mandated to adopt specific risk protection technologies or practices, nor even necessarily to achieve specific limits on levels of risk or other measures of performance. Rather, firms are mandated to study their operations comprehensively and develop their own management strategies suited to the risks they identify in their operations’ (OECD 2008).

Because management-based regulation leverages existing business processes, it has the potential to be much more cost-effective than prescriptive regulation and is certainly less disruptive of those business processes. It is also more likely to encourage innovation in managing compliance risk since businesses are more likely to comply with their own internal rules and procedures than with those imposed externally by government. Indeed, there is empirical evidence that suggests that management-based regulation can lead businesses to make risk-related behavioural changes (Bennear 2007).

Using this approach, regulated entities are often expected to develop plans or management systems that comply with criteria prescribed by the regulatory authority, for example, security plans under the International Ship and Port Security (ISPS) Code, or physical security and access restrictions under the various customs AEO and related programs. The regulatory approach may include a requirement for certification by government regulators or third-party auditors of the plans and management practices, together with evidence of compliance (OECD 2008). The OECD has recognised the importance of compliance measurement with this regulatory approach as for compliance-orientated regulation generally:

Performance standards focus attention on desired outcomes and provide flexibility to find less costly or better solutions but making them work depends on being able to measure and monitor performance. Sometimes it is difficult to operationalise the desired outcome into an enforceable regulatory standard, or sometimes it is prohibitively costly for the regulator to monitor outcomes... (OECD 2008, p. 10).

This is an important issue with respect to regulation of the international supply chain because it is particularly difficult to monitor or measure supply chain security risk in a way that is meaningful to business in terms of keeping that risk below a specified level. There is no such thing as ‘zero risk’ in the international supply chain and, at least at an operational level, businesses are often better positioned to identify risk in their supply chain than regulators, although that changes as the focus moves to broader strategic risk.

This then leads to a discussion of risk management in the context of the maritime security environment and in particular, whether that risk can be identified in a way that facilitates the design of cost-effective and efficient regulatory approaches to supply chain security that meet government and private sector concerns.

The nature of maritime transport security risk

International trade and logistics in the 21st century

The changed nature of maritime transport security risk reflects the increase in the volume and complexity of international trade itself. Technological innovation leading to the twin benefits of vast improvements in the speed of transportation and communications and the lowering of costs, has resulted in better access to overseas markets and a much greater diversity among entities involved in international trade. It has also resulted in exponential growth in the use of containerisation in maritime transport.

In 2006 the United Nations Conference on Trade and Development (UNCTAD) highlighted the fact that trade represents merely a part of a global supply chain. It estimated that about one-third of international trade in goods involves trade in unfinished goods and components, and a similar percentage represents trade within the same company (UNCTAD 2006). It is likely that these percentages have increased since the time the UNCTAD report was prepared and indeed, the WCO estimates that the percentage of intra-company trade is now closer to 50 per cent (WCO 2008).

The majority of such trade is moved (in a documentary sense) within an integrated global logistics system in diminishing timeframes to meet global sourcing and just-in-time business models that emphasise low inventory. Companies manage a continuous flow of goods that are transported as part of an intricate logistics and supply chain management system that ensures delivery at precisely the moment they are required for use as an input in production. The benefits in cost savings and efficiency are significant, but so are the risks when considering that even a short disruption to that supply chain can have considerable financial consequences (Swedish National Board of Trade 2008).

A case study that serves to illustrate the current complexity of international trade examines a single component for Apple's iPod Nano – its central microchip. That microchip is provided by a US company (PortalPlayer). The core technology of the chip is licensed from a British company (ARM) and is modified by PortalPlayer's programmers in California, Washington State, and Hyderabad. PortalPlayer works with microchip design companies in California which provide the finished design to a company in Taiwan that produces 'wafers' imprinted with hundreds of thousands of chips. These wafers are then cut up into individual disks and sent to another facility in Taiwan where they are individually tested. The chips are then encased in plastic and readied for assembly by Silicon-Ware in Taiwan and Amkor in the Republic of Korea. The finished microchip is then warehoused in Hong Kong before being transported to mainland China where the iPod is assembled.³

The iPod example of global sourcing is becoming an increasingly common feature of modern supply chains. It highlights not only the potential risks but also the difficulties of managing those risks from either a business perspective in ensuring just-in-time delivery of components, or from a business and government perspective with respect to securing the supply chain from both a commercial and regulatory perspective, including potential security threats. The reality is that there is a convergence of interest between business and government in maintaining a secure supply chain. It requires cooperation and coordination to function effectively and to minimise the risks of disruptions in the flow of goods. This collective benefit in supply chain security is recognised in the study undertaken by the Swedish National Board of Trade (2008).

The development and implementation of strategies to mitigate maritime transport security risks is complicated by the high degree of interdependence and associated network characteristics exhibited by modern global supply chains. This has created great uncertainty as to where the risks actually begin and end, since what at first may look like a minor event can quickly turn into a full-blown crisis (OECD 2009b). An often quoted example is the fire at a single-source supplier used by Ericsson which resulted in US\$400 million in lost sales for Ericsson, a drop in stock price of 11 per cent and the eventual exit of that business line. The principle is illustrated on a global scale when one considers that the current financial

crisis resulted from regulatory approaches that were adopted with relative confidence but which failed to identify the potential global ramifications of a seemingly isolated risk in one sector of an economy.

To this point, the discussion has been mainly about generic risks that flow from the complex and interdependent nature of modern supply chains, but the post-9/11 focus on counter-terrorism has required the international community to seriously consider the ephemeral characteristics of terrorist risk. Unlike other risks such as accident risk where the events are unintentional and their likelihood can be reasonably estimated from empirical observations, the probabilities associated with a terrorist attack are much harder to quantify (OECD 2009a). The OECD suggests two reasons for this:

First, terrorist attacks are relatively infrequent. This is especially true of attacks that belong to the class of extreme events, with low probabilities, major consequences, and possibly spillovers into connected systems. For such infrequent events, past events carry little information on future probabilities.

Second, attaching probabilities to intentional acts is particularly problematic because of the possibility of strategic behaviour: terrorists adapt their strategy to changes in the security environment in which they operate. Since little is known about how they will respond (because the set of available strategies is very large), it is not clear how security policies or other relevant changes affect probabilities. In sum, terrorist attacks are not characterised by risk but by uncertainty, meaning that no credible objective probability can be assigned to their occurrence (OECD 2009a, p. 6).

What can be said with some degree of certainty is that the nature of risk in the maritime transport environment requires flexibility and resilience to be engineered into regulatory initiatives to ensure their effectiveness, and that this notion of flexibility and resilience requires cooperation between and across business and government rather than a parallel and self-centred or 'silo' approach. It also requires both national and international perspectives that acknowledge the increased connections and interdependencies between and among economies. As the OECD points out in its studies of country risk management, when discussing the necessity for collaboration between government agencies, there may be an exposure 'to unforeseen vulnerabilities when risks arise that do not fit neatly within the remit of one particular department...Indeed efficient risk management may be compromised by the inability to deal effectively with bottlenecks in the exchange and analysis of information or to set priorities informed by the entirety of a country's risk portfolio' (OECD 2009b). Furthermore the risk management efforts of one company can be nullified by the inattention or inadequacy of a single supply chain partner (Closs et al. 2008).

If it is accepted that containerised cargo is one of the unique features of modern international cargo transportation and that there is some potential for it to be utilised by terrorists or by organised crime, then one of the critical supply chain security risks to be analysed relates to the international movement of containers and more specifically, to what is inside those containers.

The specific stuffing location is paramount from a security perspective because it represents the last point in the container transport chain where the physical contents of the container can be visually identified and reconciled with the commercial invoice and/or bill of lading. After the doors are shut and sealed and until they are re-opened by Customs or by the consignee at the final destination, all information regarding the contents of the container (e.g. such as the manifest, the bill of lading and even the commercial invoice) are necessarily unverified. Thus the originating shipper has a critical role to play in the container security by generating a clear, accurate and complete inventory of the physical contents of the container. Proper site security, stuffing procedures and oversight of the stuffing process are necessary for this important link in the chain to be secure (OECD 2005, p. 29).

It is axiomatic that cargo containers are at their most vulnerable in terms of having unlawful cargo introduced into the supply chain when they are at rest and least vulnerable when they are in motion

(OECD 2005). This has driven a great deal of the regulatory design thinking around supply chain security measures and placed particular emphasis on those nodes in the network where the container is handled and/or stored.

The OECD makes another important point when it notes that most international container trade passes through one or several ports. The US Container Security Initiative (CSI) focuses its security measures on those ports with the largest export volumes to the US. However, it should be noted that there is a much larger number of ‘feeder’ ports that are still involved, albeit in a minor way, and that the ports that tranship cargo through the major hubs represent a potential risk node in the broader supply chain dynamic. It is true that it is incumbent on these ports to put in place security measures in accordance with the requirements of the ISPS code, but the effectiveness of those measures is in turn dependent on the commitment to supply chain security of the governments that are responsible for them and the quality of the relevant regulatory framework and its enforcement.

A common thread that can be discerned from the various risk characteristics of the modern supply chain is the importance of supply chain *visibility*. Visibility represents the key to early risk identification and response and is a precondition for supply chain resiliency. It must therefore be considered to be of equal significance to both government and business.

At present most supply chain security initiatives have as their foundation a concept of ‘layered security’. This concept attempts to design redundancy into the system so that security breaches at one level can be guarded against at a subsequent level. Such initiatives acknowledge that an insecure supply chain has adverse effects on both business and government, and that all to a greater or lesser degree require public and private sector participation to be embodied in the proposed regulatory measures. However, it is suggested that a number of these initiatives are less efficient and effective in their design than others because they fail to contribute to supply chain visibility.

Supply chain visibility: a business perspective

The Global Supply Chain Benchmark Report published by the Aberdeen Group in June 2006 emphasises the importance of supply chain visibility to business. It found that a lack of supply chain visibility coupled with poor automation impacts a company’s bottom line through longer lead times, larger inventory buffers, budget overruns, and demand-supply imbalances. In particular, large multinationals are of a scale where poor visibility and uncoordinated multi-tier processes result in significant ‘just-in-case’ inventory carrying costs, premium freight expenses, and extended cycle times (Aberdeen Group 2006). Some particularly relevant findings from the Report include:

- Some 79 per cent of companies said that the lack of supply chain process visibility is their top concern.
- 82 per cent of companies are concerned about supply chain resiliency, but just 11 per cent are actively managing this risk.
- The top five ‘gap’ areas relating to supply chain risk were risk profile of vendors (56%), supply chain security (51%), logistics capacity and congestion (47%), risk profile of country (46%) and weather disruptions and natural disasters (44%).
- In addition, 47 per cent wanted to improve the data quality of the event messages, including timeliness, completeness, and accuracy of those messages.
- 91 per cent of companies reported that unexpected supply chain costs were eroding their anticipated low-cost country sourcing savings, with transportation budget overruns being the top culprit.

The Aberdeen Group’s report reveals that improvements in supply chain risk management are being achieved through the adoption of two core strategies. Firstly, through ‘increasing logistics and supply agility by ensuring alternate suppliers, carriers, routes, and the like are arranged’ and secondly, by

‘improving visibility and automation of supply chain activity’ both upstream and downstream in the supply chain.

Bearing in mind the importance of compliance (performance) measurement, multinational businesses are increasingly measuring the performance of their supply chains via the concept of ‘total landed cost’. The Aberdeen Group’s research shows that the best performers are those companies that have been most successful in reducing their total landed costs and documentation. These companies are ‘twice as likely to have current budgeted trade compliance projects as their peers’. It is further noted that ‘as regulatory oversight intensifies, enterprises are finding increased value in moving to a single trade compliance platform for the entire company that enables consistency of product classifications and restricted party screenings and provides a common view of compliance activity and trade costs’ (Aberdeen Group 2006).

In this context it can be argued that supply chain visibility and resiliency are critical characteristics of an international compliance strategy, and that a focus on trade compliance is as important to business as it is to regulators. Both are seeking to maintain security across the supply chain, although motivated perhaps by different objectives. As the Aberdeen Group’s report states:

Managing international logistics is not like managing an extended domestic supply chain; it’s fundamentally a multi-party process fraught with greater unpredictability in quality, lead times, costs, and risks. Rather than create the absolute-lowest-cost fixed network, leaders are building into their logistics networks more points of flexibility. This helps them continually scan their environment for bottleneck symptoms or spikes in demand and take action (Aberdeen Group 2006).

Supply chain visibility: a government perspective

Supply chain visibility is equally as important for governments because greater supply chain visibility provides regulatory authorities with the information they need to analyse risks, identify high risk or suspect shipments and target potential security threats. The critical aspect here is ‘information’, since the regulator’s ability to identify and treat risk is dependent on the timeliness and quality of information. If the information that is provided to commercial operators and regulators is inaccurate or intentionally false, the best regulatory scheme in the world will be unable to achieve its objectives in the absence of other sources of intelligence. This theme is further explored later in this paper.

Supply chain visibility in ‘real-time’ allows a rapid response to emerging risks and if this is combined with effective risk management systems that include proactive event and exception management,⁴ the whole process of supply chain security is significantly enhanced. End-to-end supply chain visibility, although difficult to achieve, improves responsiveness for business (production rates and shipment lead times) and government (early risk identification).

The international movement of cargo is far from being fully visible because there is no single regulatory agency with end-to-end supply chain responsibility. As the OECD has previously observed, the most vulnerable period for the container is at the time of stuffing, before the shipper seals it. The system relies on the trusted shipper, and the majority of stock is presumed to be safe. However, the bill of lading represents a weak point in the chain: how do the authorities or downstream industry players know what is actually packed in the container? The bill of lading is rarely verified through inspection of the containers after packing or during transport; and road transport, where the container is in the hands of a single person for a lengthy period of time over large distances, is especially problematic (OECD 2005).

The ideal visibility outcome would be *visibility on demand* for government and business. This could only be achieved through close integration of relevant government and business logistics systems. This concept has been discussed at length in the customs environment as best practice with respect to achieving seamlessness in cross-border transactions and is predicated on government having direct and

secure access to commercial data for risk assessment purposes. Although some may claim that this ideal has been achieved in the context of ‘single window’ initiatives, the contrary is argued here. A true single window with on-demand access to existing commercial data by government and other stakeholders such as port authorities, freight forwarders and the like has yet to become a reality. While some of the more progressive port community systems may be presented as role models in the port environment,⁵ a similar solution in the broader supply chain is far from being a reality.

Indeed, there may be a degree of resistance among participants in international trade to share with government what in most cases represents valuable commercial information for fear of competitors gaining access to price-sensitive and competitive information. As Dahlman et al. state:

Large shipping companies have information on the containers they transport and where they are at any given time. Smaller feeder companies are usually less organized. The information systems are unique to each company and do not interact with those of harbours or customs authorities. This information is of commercial value, and it is unclear how much information shipping companies are willing to share, and with whom and under what conditions (Dahlman et al. 2005).

While there is no argument that a lack of timely and accurate data reduces supply chain visibility, the major barrier to end-to-end supply chain visibility remains this lack of integration and its surrounding challenges, including the technology and infrastructure limitations of the various stakeholders up and down the supply chain, which in many cases includes government.

The OECD recognises such shortcomings in its identification of common challenges to effective risk management, which include ‘misinterpretation or misrepresentation of data, communication bottlenecks and logistics breakdowns, which may increase with every step taken between a source of information and its use by decision makers. Overarching, all-hazards policy frameworks promote coordination of highly specific expertise, development of information sharing arrangements, improvement of data integration capacity, investment in training civil servants and cooperation exercises across multiple agencies involved in country risk management’ (OECD 2009b, p. 9).

The evolution of current supply chain security initiatives

SITPRO has developed a useful categorisation for the various types of international trade security measures that have been introduced recently:

- *Umbrella*, aimed at security risks in their broadest sense
- *Goods specific*, aimed at risks specific to individual types of goods
- *Control specific*, aimed at meeting narrowly specified control objectives
- *Safety*, concerning the safety of staff and use of critical infrastructure
- *Commercial*, business-based initiatives to manage transport and supply chain risk (SITPRO 2008).

In this paper, the SITPRO categorisation has been adopted when describing how the various supply chain security initiatives that have been implemented, or are about to be implemented, have evolved since the events of 9/11.

Many of the initial supply chain security measures may be described as *umbrella* approaches, that is, they are designed to deal with security risk in the supply chain at the broadest level. The first of these initiatives was the US Customs-Trade Partnership Against Terrorism (C-TPAT) program.

In essence, C-TPAT is a voluntary government-business program that encourages cooperation between US Customs and Border Protection (CBP) and the international trading community in an effort to increase the level of international supply chain security. The intention is that, in exchange for businesses meeting CBP-designed security standards and becoming C-TPAT certified, participants in the program should

receive certain benefits such as reduced inspections and priority processing. Manufacturers, importers, carriers and service providers participate by submitting detailed self-appraisals of their supply chain security practices, and these are periodically verified by CBP. However, according to Laden:

...the validation process is clearly the Achilles heel of the C-TPAT program. Most SCSS validators have only enough knowledge and experience to complete a very cursory review of security protocols at a certain facility. In fact, the validation program has earned a reputation of being more of a 'feel good exercise' than a true validation and test of a company's supply chain security program. Many validations take two hours or less, and are generally held in one of the more desirable travel destinations, rather than where the risk actually lies (Laden 2007, p. 78).

This focus on relatively broad supply chain security risks and the development of an overall framework for managing supply chain security has been subsequently reinforced with the introduction of the International Maritime Organization (IMO) International Ship and Port Security (ISPS) Code, the World Customs Organization (WCO) SAFE Framework of Standards, the US SAFE Port Act, the International Organization for Standardization (ISO) supply chain security standard (ISO 28000), and the various Authorised Economic Operator (AEO) programs such as those implemented by Japan, Singapore and the EU, which have largely been modelled on the WCO SAFE Framework.

Other security initiatives are, however, much narrower in focus. Such initiatives are not only more specific, but have been driven 'top-down' by government, and have involved far less collaboration with the private sector. A goods specific example is the US Bioterrorism Act⁶ which is designed to assist the US Food and Drug Administration (FDA) to determine the source and potential cause of any contamination of imported food and beverages. The Act facilitates such identification by requiring registered food facilities⁷ to provide the FDA with consignment information prior to importation into the US. Depending on the mode of transportation, parties involved in importing these products are required to provide the information two to eight hours prior to arrival.

Another early initiative was the US Container Security Initiative (CSI). Introduced in 2002, CSI is an example of a *control specific* initiative, the focus of which is predominantly procedural compliance rather than on implementing a regulatory framework that is aligned with contemporary supply chain management practices. CSI involves bilateral arrangements between CBP and other customs authorities that are designed to identify high-risk cargo containers before they are loaded on vessels destined for the US.

Under the CSI initiative, economies agree to the posting of US officials at ports which ship large volumes of goods to the US, and for them to examine high-risk maritime containerised cargo (generally through X-ray and radiation scanning) before being loaded on board vessels destined for the US. As such, CSI is an initiative that seeks to push US port security upstream in the supply chain to the port of origin of the cargo. At the time of writing, 58 ports, accounting for 85 per cent of container traffic bound for the US, were participating in CSI.⁸

Sarathy (2005) comments on a number of shortcomings in the CSI operation due to its reliance on receiving 'complete and accurate manifest data to analyse in deciding which containers to target for further inspection':

In Rotterdam the CSI team found that manifest data was not complete. The data was limited to containers actually transferred from one vessel to another in Rotterdam. Manifest data did not extend to containers that remained on board a vessel bound for the US which stopped in Rotterdam. Further, the CSI did not have manifest data on containers from Rotterdam which had arrived by truck, rail or barge from other countries (neighbouring EU countries as well as countries further afield in E. and Central Europe). Further, paper manifests were received at 40 different locations within the Rotterdam port. Dutch law sometimes prevented such paper manifests from being removed from

their locations. These factors together made it difficult for CSI to receive accurate and complete and timely manifest data before the containers left Rotterdam (Sarathy 2005).

Sarathy observes that the information deficiencies demonstrated by the Rotterdam exercise led to the US Advance Manifest Rule (also referred to as the 24-hour Rule), which requires all ocean carriers or non vessel operating common carriers (NVOCC) to electronically transmit cargo manifests and entry data to the CBP Automated Manifest System 24 hours before the US-bound cargo is loaded onto a vessel at the port of export. In essence, the 24-hour Rule shifted responsibility for the provision of information from the foreign ports to carriers, forwarders and brokers, and in doing so, imposed additional maritime transportation costs. As noted by Grainger (2007), 'transaction costs amongst actors occur...where regulations and operational practices do not align'.

The 24-hour Rule is an example of a *control specific* initiative, the focus of which is predominantly on prescribed information and procedural compliance rather than on implementing a regulatory framework that is aligned with contemporary supply chain management practices. Other examples of *control specific* initiatives include the US 100 per cent container scanning initiative, the US Secure Freight Initiative and the US '10+2' Rule. Such initiatives are not solely being pursued by the US, however, as Sarathy notes:

...when the port of Le Havre joined CSI in Nov. 2002, the French Customs updated an existing form, and required shippers to file information on 36 data items twenty-four hours before goods arrived at the port. The data were incorporated in a 'Declaration de Surete (DS)' collected from shippers, exporters, brokers and freight forwarders; this report was actually more comprehensive than the US Customs' 24-Hour Rule document which required fifteen data elements... (Sarathy 2005).

While it is true that maritime and other security initiatives are now ubiquitous, most responses to the threat of supply chain terrorism can be traced back to their US origins (such as the Le Havre initiative), and this continues to be the case. Two US programs that are currently being debated, and which the international community is watching particularly closely, are the 10+2 Rule and the 100 per cent scanning initiative.

The 10+2 Rule

Formally known as Importer Security Filing (ISF) and Additional Carrier Requirements, the 10+2 Rule is a US initiative that requires importers and ocean carriers to submit data elements to the US CBP in addition to the 24 or so data elements that they are currently required to provide.

According to Blegen (2009), '[T]his rather innocuously titled 57-page regulation contains what is likely to represent the single most significant change in the US import process in at least 15 years, and is the culmination of approximately two years of concentrated effort by CBP in the face of widespread trade opposition within the US'.

Section 203(b) of the US SAFE Port Act requires the Secretary of Homeland Security, acting through the Commissioner of Customs and Border Protection, to require the electronic transmission of additional data elements to improve high-risk targeting as advance information with respect to cargo destined for importation into the US prior to loading of such cargo on vessels at foreign ports. The additional data elements are:

1. Seller name and address (or number).
2. Buyer name and address (or number).
3. Importer of Record Number/Foreign trade zone applicant identification number.
4. Consignee number(s).
5. Manufacturer (or supplier) name and address (or number).
6. Ship to party name and address (or number).
7. Country of origin of the goods.

8. Six-digit Commodity Harmonized Tariff Schedule number.
9. Container stuffing location name and address (or number).
10. Consolidator name and address (or number).

These data elements are to be provided by the importer. The other two (2) data elements are vessel stow plan and container status messages which must be provided by the carrier.

It is widely considered that the rule goes beyond the legislation's intent by placing legal liability on the importer to obtain complete, accurate information from overseas sources, which may be impossible to obtain or verify before the cargo is due to be loaded on the US-bound vessel. Furthermore, shippers and forwarders are concerned about the associated IT programming costs, third-party filing fees and cargo delays while the importers locate origin and destination information that does not currently form part of the commercial data stream.⁹

The US Federal Office of Management and Budget has estimated that the 10+2 Rule could cost industry between US\$350 million and US\$600 million annually, and is closely examining the rule's economic impact to ensure that it does not place an undue burden on business in the current financial crisis and economic slowdown.¹⁰ A recent article in the *Journal of Commerce* cites the US National Association of Manufacturers in relation to the possible impact of the Rule:

The association cites independent studies concluding that importers of manufactured goods incur a collective cost of \$8.5 billion for each additional day added to the supply chain, partly related to additional inventory carrying costs. According to the NAM, a Purdue University and USAID study independently estimated that each day of shipping time saved is worth 0.8 per cent ad-valorem tariff for manufactured goods. Based on the value of total manufactured imports carried by sea vessels in 2007 (\$1.04 trillion), a one-day delay would collectively increase the cost for US manufacturers by \$8.5 billion annually. Manufacturers estimate at least a two-day delay, or \$17 billion annually (Tirschwell 2009).

100 per cent container scanning

Another example of a *control specific* initiative is the US 100 per cent container scanning proposal. The US SAFE Port Act requires 100 per cent scanning of all US-bound container cargo by 2012 using non-intrusive inspection equipment, including imaging equipment which may use X-rays or gamma rays to create images of the containers' contents, and radiation detection equipment at foreign ports. A pilot program to test the feasibility of 100 per cent scanning has been conducted at six selected CSI ports.

This initiative attempts to push supply chain security further 'upstream', consistent with some of the other control initiatives highlighted earlier. However, while in theory the physical inspection of the contents of every container provides the best determination of a security risk, it is also one of the most costly and labour-intensive measures to implement. To illustrate the magnitude of the task, of more than 7 million containers that entered the US in 2002, approximately 10 per cent were inspected and scanned (up from 2 per cent prior to 9/11). In Rotterdam the figure is about 5 per cent and in the UK it is between 4 and 7 per cent (OECD 2005).

Many customs administrations undertake 100 per cent screening of containers in the sense that the associated information is screened, but none physically examine 100 per cent of their container traffic, either through the use of scanning equipment or otherwise. Indeed, this would be impossible with currently available technology and the volumes of containerised trade.

The proposal for 100 per cent scanning in the current maritime operating environment represents the antithesis of risk management. On the other hand, screening, which in many cases is now fully automated, forms an integral part of an appropriate risk management regime that assists in identifying those containers which may pose a security (or other) risk, and are therefore candidates for scanning

and inspection. The 24-Hour Rule and similar requirements for advance information contributes to the screening process and the early identification of high-risk cargo.

The difficulties of achieving 100 per cent scanning coupled with physical inspection have been highlighted by a number of national and international organisations including the US General Accounting Office (GAO) and the OECD. The OECD comments:

The ability of machines even with the latest technology, is limited and identification of materials relies on the expertise of operators. X-ray machines assess the density of materials and sound an alert but the screeners need to judge and identify the materials by viewing the image and sometimes by physical search. The inspectors need to be well trained to interpret the x-ray images and other indicators produced by machines (OECD 2005, p. 49).

Similarly, the GAO observes:

...international partners have expressed to DHS and Congress that 100 percent scanning runs counter to – and could adversely impact the implementation of – international customs security standards such as the SAFE Framework. Officials from the European Commission and CBP stated that unless additional resources are made available, 100 percent scanning could not be met...Given these resource issues, officials from CBP and European customs administrations stated that scanning all cargo bound for the US may actually provide a lower level of security. The officials explained that 100 percent scanning could result in diluting the current focus on high-risk containers. Under the current risk management system, customs officers are to base their reviews on the perceived risk posed by the cargo and, thus, are to review the scanned images of high-risk containers in a very thorough and detailed manner. However, according to CBP and WCO officials, if the scanned images of all containers must be reviewed, the reviews may not be as thorough because customs officers could lose focus due to the sheer volume of work. If images are not properly or thoroughly analysed, a degradation of security could result. Further, a European customs administration official reported that 100 percent scanning could have a negative impact on the flow of international commerce. The official also added that the 100 percent scanning requirement would disproportionately affect trade with developing countries (GAO 2008).

The GAO has identified the following nine major difficulties with implementing the 100 per cent scanning mandate:

- Workforce planning.
- Host nation examination practices.
- Measuring the program's performance.
- Resource (cost) responsibilities.
- Logistics of space constraints at ports.
- Technology and infrastructure.
- Use and ownership of data when foreign seaports are involved.
- Consistency with risk management.
- Reciprocity and trade concerns.

As with the 10+2 Rule, there has been strident criticism from the private sector with respect to implementation of 100 per cent scanning and indeed from CBP itself. Such criticism covers a broad range of issues including, but not limited to, potential costs and delays,¹¹ staffing challenges,¹² the lack of physical 'choke points' where large numbers of containers can easily be scanned on their way through ports,¹³ the complexity of the task required of those viewing the scanned images,¹⁴ and the shortcomings of available technology.¹⁵

Appropriateness of the regulatory initiatives

Trade efficiency abhors regulatory complexity and uncertainty. Traders need transparency, clarity and predictability in order to transport their goods as quickly and efficiently as possible from origin to destination. The complexity that is reflected in a multitude of regulations applying to the same transaction, and the uncertainty resulting from differences in interpretation and administration add cost to an international trade transaction and can reduce the competitiveness of a particular export or investment destination. Consequently, there is a strong demand for standardisation, harmonisation and mutual (cross-border) recognition.

As previously noted, in the present political environment, any challenge to the validity of security initiatives can be quickly dismissed on the basis that it is seen not to be supportive of international anti-terrorism efforts. However, it is contended that the time has come to critically evaluate the appropriateness of supposed security initiatives, particularly in the context of contemporary risk management principles and commercial practicality. The latter is of particular importance given the internationally identified need to stimulate the global economy as a matter of priority. Indeed, the current economic climate is placing more emphasis than ever on minimising costs, and the nature and extent of supply chain regulation is understandably a key area of focus for traders. In this regard, no regulatory initiative that has the capacity to significantly impact the facilitation of international trade can be exempted from rigorous scrutiny.

Voluntary compliance programs

A significant number of the security-related regulatory initiatives that have been introduced in the maritime transport environment since September 2001 are representative of a management-based regulatory approach, and reflect many of the principles of compliance-orientated regulation, of which management-based regulation is a sub-set. These regulatory regimes also fall within SITPRO's category of 'umbrella' security initiatives, in that they are designed to address security risks in their broadest sense.

The WCO SAFE Framework, the US C-TPAT program and the various national programs that are based on the SAFE Framework's AEO concept are all considered to fall within this category. Importantly, all such programs are voluntary. Members of the international trading community are invited to join the various programs on the understanding that they will be able to derive benefits that are not available to those who choose not to apply for membership. In this regard, the various schemes do not impose any regulatory burden on the industry participants that they are not willing to accept, and the decision to do so is based solely on commercial considerations.

Each of the programs has a clear focus on supply chain visibility but in a way which encourages industry participants to address the required security risk outcomes in a relatively flexible manner. This is achieved by leveraging business knowledge, operating practices and information systems, with an opportunity for the regulators to verify industry's self-assessed findings. Also, by leveraging existing commercial practices and procedures in this way, any disruption to business processes is minimised.

The various programs also reflect sound principles of risk management by seeking to identify low-risk members of the trading and transport community. The principal aim of AEO programs is to provide customs authorities with a method of identifying those elements of the international supply chain that are secure, which allows them to focus their resources on potentially high-risk operators. Assessing the compliance levels of such companies, regardless of the result, provides Customs with a clearer picture of compliance levels and the potential impact of non-compliance. This in turn greatly assists in determining where future compliance resources should be directed.

The notion of coordination and cooperation which are at the heart of modern regulatory compliance approaches discussed previously are well served by these voluntary compliance programs. Such programs help create a network of secure operations, they establish a base level of security standards, and help raise the overall level of security for global operations. Also, participation in voluntary programs helps to further build the partnerships between the public sector and private industry necessary to create a secure environment (Purtell & Rice 2007).

There are, however, a number of concerns with these schemes, all of which relate to the need to deliver the benefits that are being claimed by the authorities. Indeed, there is considerable doubt as to whether some of the identified benefits will ever see the light of day, particularly those associated with the mutual recognition of AEO status. According to the WCO:

The Resolution on the SAFE Framework...calls upon Customs administrations to work with each other to develop mechanisms for mutual recognition of AEO validations and authorizations, and Customs control results and other mechanisms that may be needed to eliminate or reduce redundant or duplicated validation and authorization efforts.

Mutual recognition is a broad concept whereby an action or decision taken or an authorization that has been properly granted by one Customs administration is recognized and accepted by another Customs administration. The standardized approach to Authorized Economic Operator authorization provides a solid platform for long-term development of international systems of mutual recognition of AEO status at bilateral, sub-regional, regional and, in the future, global levels.

In order for a system of mutual recognition to work it is essential that...There be an agreed set of common standards (WCO 2007, p. 54).

However, while some WCO members are interpreting the guidelines to require an AEO to demonstrate a high level of supply chain security (for example, Singapore), others are adopting a far broader interpretation which includes customs compliance generally. The EU, for example, requires an AEO to demonstrate:

- an appropriate record of compliance with customs requirements
- a satisfactory system of managing commercial and, where appropriate, transport records, which allows appropriate customs controls
- where appropriate, proven financial solvency
- where applicable, appropriate security and safety standards (European Commission 2007).

Clearly an unfortunate casualty of this failure to agree on basic AEO criteria is the concept of mutual recognition. If one administration requires an entity to demonstrate levels of both general compliance and security compliance before being granted AEO status, and another grants AEO status solely on the basis of security compliance, the achievement of mutual recognition is unlikely unless the parties are prepared to adopt a 'lowest common denominator' approach.

Another potential benefit that has attracted some attention is the potential for reduced insurance premiums, that is, the possibility that certification as an AEO or member of C-TPAT may result in a reduced risk profile and therefore lower premiums. However, the fact is that measures to improve security do not necessarily lead to a reduction in insurance premiums because insurance companies take a 'networked' view of the supply chain (as they should), and are therefore concerned that a 'secure' entity may be tainted by less secure entities that form part of their supply chain. This reflects the principle that any supply chain is only as good as its weakest link and risk attaches to the entirety of the supply chain, not just one entity within it (OECD 2009a). Indeed, it is not known if any participants in either an AEO program or the US C-TPAT program have received cheaper insurance by virtue of that participation.

Interagency cooperation

Coordination and cooperation are at the heart of modern regulatory compliance approaches, and the voluntary compliance programs described above provide an effective mechanism for public/private sector collaboration. Such programs are strengthened in terms of both their efficiency and effectiveness when they seek to incorporate a broader range of regulatory matters than those relating to a single authority. To achieve this, a significant degree of interagency cooperation is required.

The OECD has recognised the dangers of a one-dimensional or ‘silo’ approach by government that fails to acknowledge the connections and interdependencies of modern society. As it states in its discussion of Innovation in Country Risk Management:

...Over time highly defined areas of competence tend to develop in which numerous ministries, departments and regulatory agencies at various levels of government carry out operations in parallel and separate silos. A modern networked society with increased connections and interdependencies may be exposed to unforeseen vulnerabilities when risks arise that do not fit neatly within the remit of one particular department. Indeed, government departments might focus on one phase of what is actually a multi-layered risk management cycle...Policymakers, regulators and emergency services with narrow or short-sighted focus on achieving their individual mandates may also miss opportunities, fail to leverage the expertise of colleagues in different government departments, compare different types of risks and share lessons learned... (OECD 2009b, pp. 4-5).

Supply chain security initiatives that fail to encourage cross-agency communication and cooperation invite the same sort of costs and inefficiencies as initiatives that ignore the commercial aspects of the supply chain. The preferred governance model for risk management as identified by the OECD from its various case studies is therefore one that is characterised by an approach that addresses networked risk by:

- coordinating the many central, regional and local government bodies in their various efforts to implement national policy goals related to public safety and security
- providing guidance to such bodies on how to conduct risk assessments
- streamlining and standardising reporting requirements for risk assessment and emergency management plans through a common information sharing mechanism (OECD 2009, p. 11).

The WCO SAFE Framework with its Government-to-Business and Government-to-Government pillars is a good example of a governance approach that is relevant and effective in the international trade and transport security environment.

100 per cent scanning

As previously noted, the concept of 100 per cent scanning in the current environment represents the antithesis of risk management. Furthermore, social expectations no longer accept the concept of intervention for intervention’s sake. Rather, the current catch-cry is *intervention by exception*, intervention when there is a legitimate need to do so, that is, intervention based on identified risk.

The 100 per cent scanning of containers cannot be considered to represent a risk-based regulatory control mechanism, as the absence of any form of selectivity excludes its qualification as a legitimate risk treatment. The CSI program, on the other hand, is selective in that it focuses on specific ports and adopts a risk-based targeting strategy within those ports. As noted by Straw:

DHS has long asserted that it screens 100% of US-bound cargo containers. That never meant a physical examination of each container, however. Rather, it referred to a risk-based screening, beginning with

a review of all US-bound container manifests at their ports of departure for information that indicated elevated risks. Only in cases where documentation gave reason to suspect elevated risk would a container be subjected to physical scanning or inspection (Straw 2008).

The rationale for attempting to scan 100 per cent of containers is also questioned by Ritter, who comments:

...logic follows that there must be a direct relationship between quantity of scanning and risk mitigation. Unfortunately, a stronger relationship actually exists between risk mitigation and enhancing the quality of scanning. The global trade industry would be better served by focusing on mandating improvements in the type of cargo scanning rather than insisting that additional effort be focused on the quantity of scanning.

The portal monitors have proven to be an ideal technology for verifying that legitimate radioactive cargo is present in the supply chain – but little more. Trucks continue to trigger alarms by the thousands per day, and secondary inspections are being performed with increased frequency in US ports and other select locations throughout the world. These secondary inspections ultimately serve to verify that commodities such as smoke detectors, fire brick, or cat litter are, in fact, emitting harmless amounts of radiation. But verifying normal is not the objective. And the actual utility of this approach, with regard to security threats, is still unclear (Ritter 2009).

The policy to introduce 100 per cent scanning has, more than any other US strategy, caused significant global concern about the likely impact of such an initiative on the flow of maritime trade. US trading partners have previously accepted with little argument the introduction of similar initiatives such as CSI, but there has been an international backlash following this latest move. There are several reasons for this.

Firstly, 100 per cent scanning would have an unacceptable impact on trade, and the world is starting to question the need for such intrusive (in terms of business impact) strategies. Secondly, an international transport environment that has for the past decade been striving to achieve an appropriate balance between trade facilitation and regulatory intervention sees this as a significant backward step. And thirdly, there is growing evidence to suggest that, for many economies, the primary objective in implementing the various security-related initiatives has little to do with the aim of minimising the occurrence and impact of terrorism, and is more concerned with maintaining a healthy trading relationship with US.¹⁶ In this regard, the OECD notes that ‘It is sometimes argued that many emerging security initiatives at ports outside the USA are driven by the fear that doing nothing will make it hard or impossible to export to the USA, not by security concerns as such. This incentive may compromise the effectiveness of the measures that are taken’ (OECD 2009, p. 13).

Observations on the 10+2 Rule

The ISF or 10+2 Rule is based on the same supply chain security philosophy as the Container Security Initiative, although in this case the initiative relates to the information associated with the cargo, in line with the 24-hour (Advance Manifest) Rule. In essence, it extends the Advance Manifest requirement further into the supply chain, at least from a data perspective, and shifts the ‘virtual border’ of the US beyond the port of loading of the cargo back to the manufacturer.

If the supply chain is examined from the perspective of CBP or other country equivalent and it is assumed that the US port of destination is the central node in the supply chain for a particular consignment, the data elements that comprise the ISF can be characterised as follows:

Upstream in the Supply Chain (Importer/Customs Broker)

- Manufacturer
- Seller
- Container stuffing location
- Consolidator
- Country of Origin
- HS classification

Upstream in the Supply Chain (Carrier)

- Vessel Stow Plan
- Container Status Message

Downstream in the Supply Chain (Importer/Customs Broker)

- Buyer
- Importer of Record
- ‘Ship To’ Party
- Consignee

The success or otherwise of the ISF as a risk management tool is totally dependent on its foundation, that is, the quality and timeliness of the data provided. If the data is false or inaccurate, either intentionally or otherwise, the utility of ISF is compromised as are the risk decisions that flow from that data. In this regard, the ‘+ 2’ component of ISF that is provided by the carrier does not really alter the risk equation because while the container is moving, there is less risk of illegal cargo being introduced to the container than when it is stationary (OECD 2005).

Any person or group that is intent on using the supply chain for criminal/terrorist activity is unlikely to advertise the fact through poor documentation of the trade and transport transaction. It is more probable that they will utilise legitimate sources and plausible data so as not to draw attention to the transaction. For example, they may set up a legitimate international trading company or purchase one and establish their legitimate trading credentials over a period of time. It is also likely that they may seek to use a well-known and established carrier or logistics provider, perhaps even one that is C-TPAT certified or a ‘known shipper’. Anyone who may consider this scenario to be far-fetched need only refer to the example of the ‘Khan Network’ and the level of sophistication exhibited in that case.¹⁷

ISF is unlikely to detect anything unusual about a transaction in situations where the associated information has been constructed in such a way, and yet such a shipment logically falls at the ‘Very High’ or ‘Extreme’ end of the risk scale, at least as far as impact is concerned. If, on the other hand, the ISF data is inaccurate but not intentionally inaccurate (for example, transcription errors or some other carelessness), it is still unlikely to be detected by regulatory screeners, but more likely to be detected than a carefully constructed scam. An economist once argued, ‘If Customs insisted on more accurate manifest reporting, it would be far easier to identify shipments that posed a security risk’. However, the authors do not recall anyone actually describing their cargo as ‘weapons of mass destruction’!

Note also that investigations to uncover sophisticated illegal activities are extremely complex and take considerable time to complete, and consequently, targeting under the 24-hour Rule is completely reliant upon automated processing systems. For example, it took the authorities about ten years to uncover the activities of the Khan Network, and there is little doubt that such activities would not have been identified within 24 hours, even if the additional data elements required under the 10+2 Rule had been submitted.

Good intelligence and risk indicators based on that intelligence are currently, and are likely to remain the most effective and efficient means of detecting unlawful activity prior to arrival of a consignment.

Requesting cargo-related information as early as possible in an international trade transaction provides extra time for border agencies to undertake a meaningful risk assessment of the cargo and decide whether or not to intervene, either by scanning, physical inspection or import prevention, but it should be emphasised that it is this temporal aspect of ISF rather than the data requirements themselves that is beneficial to the enforcement objective.

It is therefore considered that the ISF requirements add cost to an international trade transaction without commensurate benefit. A more cost-effective approach that is also more likely to identify supply chain security risk is through secure and ‘real-time’ access (that is, visibility on demand) to existing commercial data in the supply chain and the leveraging of partnerships with the private sector to assist in identifying anomalies. In the absence of specific intelligence such as evidence of an ‘internal conspiracy’, it should be recognised that industry participants are better placed than regulators to observe what is ‘normal’ and ‘abnormal’ as goods move along the supply chain.

Governments can add value by facilitating the process through appropriate regulation, international cooperation and harmonisation/standardisation so as to maximise supply chain visibility. Value is not added through the prescription of additional data requirements.¹⁸ As noted by Laden, ‘A good supply chain security program should retain the flexibility to achieve the goal of a more secure system of global trade...not simply become another “paper tiger”’ (Laden 2007, p. 80).

A good example of the role that governments can play is in the closely related area of export controls. The publication and dissemination of ‘Denied Persons Lists’ and ‘Red Flag’ indicators to the public and private sectors provide guidance to supply chain participants concerning potential risks, and also serve to supplement supply chain visibility. A particular advantage of this approach to regulators such as Customs is that it treats the supply chain itself as an additional compliance management resource.

100 per cent scanning and 10+2 Rule in context

The 100 per cent scanning strategy and 10+2 Rule are intended to form part of the broader suite of security programs which include such initiatives as C-TPAT and AEO. These initiatives are in turn designed to provide Customs with a degree of confidence about the security of a participant’s supply chain. This being the case, the question that must be asked is this: If a trader demonstrates a commitment to global supply chain security by achieving and maintaining AEO status, does there remain a genuinely risk-based need for the trader to provide advance information to the authorities who granted that status, and for their cargo to be scanned as a matter of routine?

This brings us back to Parker’s (2000) description of compliance-orientated regulation, particularly the need to focus on the substantive objectives that the policymaker is seeking to achieve, and the extent to which the chosen regulatory regime is in fact able to achieve those objectives. As noted by Grainger, ‘The challenge in reducing transaction costs and meeting regulatory control objectives – like those of increased security – is to consider how best to align the institutional framework with operational requirements’ (Grainger 2007, p. 26).

Compliance assessment/regulation model

From a compliance perspective, regulated entities can generally be divided into three categories:

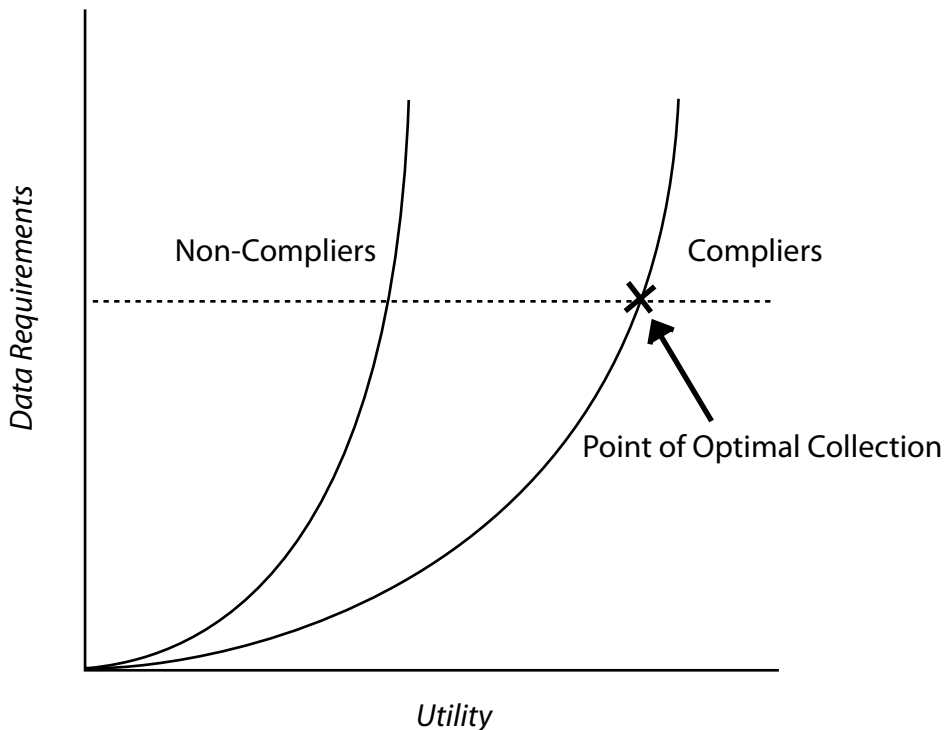
- those who will actively seek to comply
- those who will comply provided they are given appropriate incentives to do so (including appropriate incentives to avoid non-compliance)
- those who will intentionally pursue a course of non-compliance.

Compliant members of the international trading community (including those who fall into the second category) will generally provide Customs with accurate information in relation to their consignments. The information provided facilitates the identification of the cargo, the means of transportation and the various industry participants in the supply chain, and the fundamental data elements will provide Customs with a basic snapshot of the relevant consignment. While further data elements will assist in building a fairly comprehensive picture relatively quickly, there comes a saturation point at which additional information is unlikely to usefully contribute to the regulator's knowledge of the transaction.

Based on the assumption that deliberate non-compliers are unlikely to submit completely accurate information to Customs, the authors believe that the saturation point for such non-compliers will be reached much earlier in the data submission process. In other words, given that certain data elements will be inaccurate, Customs will at best have access to a handful of relevant information, and will be unable to develop a true picture of the transaction beyond some very basic aspects such as the vessel, carrier and the like. This is because non-compliers are unlikely to provide Customs with information that may attract attention from a risk-targeting perspective. This phenomenon is illustrated graphically in Figure 2.

Some may argue that profiling techniques are capable of identifying such situations. The reality is, however, that profiling is not a particularly successful technique for detecting sophisticated illegal activity of this nature. For example, Press argues that 'strong profiling (defined as screening at least in proportion to prior probability) is no more efficient than uniform random sampling of the entire population, because resources are wasted on the repeated screening of higher probability, but innocent, individuals'.¹⁹

Figure 2: Compliance assessment/regulation model



Source: Widdowson & Holloway (2009)

The model addresses the utility of routine data collection relating to individual transactions from the perspective of identifying potential regulatory non-compliance. It postulates three basic principles that can be summarised as follows:

- As data requirements increase, the value added to the assessment process decreases exponentially.
- Beyond a particular point (point of optimal collection) the requirement for additional information adds a regulatory burden to non-compliers with minimal benefit to the regulator.
- The point of optimal collection is reached earlier for non-compliers than for compliers.

The above model is qualitative in nature, and has not been tested by way of empirical research. The authors would encourage research that is designed to test the validity of the model.

Conclusions

International attempts to retrofit security regulation into already overly complex cross-border regulatory frameworks are resulting in particularly costly outcomes for industry, and this at a time when economic stimulation is supposedly high on the global political agenda.

Regulatory initiatives must therefore be carefully scrutinised to ensure that they are achieving a cost-effective outcome for both business and government that is consistent with:

- the desired policy outcome
- the nature of the operational environment being regulated including both its commercial practices and relative security risks
- the extent to which the regulatory requirements are likely to impact on the operational effectiveness of the activity being regulated, in this case international trade and transport.

In the authors' opinion, the approach that is most likely to achieve these objectives is one of compliance-orientated regulation in which the elements of both enforcement and incentives to comply with regulatory requirements are present in preference to a prescriptive approach that is likely to be less cost effective and more disruptive to commercial operations.

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Endnotes

- 1 See, for example, David Widdowson 2004, 'Managing risk in the customs context', in Luc De Wolf & José B Sokol (eds), *Customs Modernization Handbook*, World Bank, Washington, DC, pp. 91-99.
- 2 US Transport Safety Authority Known Shipper Program, viewed 10 May 2009, www.tsa.gov.
- 3 Case study taken from the *Mail on Sunday*, 18 August 2006, viewed 10 May 2009, www.bodine.phila.k12.pa.us/kaufman/ITGSweb/assignments/ipod/ipodchina.htm.
- 4 Event and exception management provides authorised individuals with notification of events that have an impact on the decision-making process. In the business context, this might be something like a shortage of inventory or shipment delay. In the government context, this might be a change in transport route, origin or company details. It can form an effective element of a profiling and targeting system.
- 5 See, for example, Alan Long 2009, 'Port community systems', *World Customs Journal*, vol. 3, no. 1, pp. 63-67.
- 6 US Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (the Bioterrorism Act) which came into effect on 12 December 2003.
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- 11 Web Memo published by 'The Heritage Foundation', No. 1955, 13 June 2008.
- 12 Straw 2008.
- 13 Straw 2008.
- 14 Straw 2008.
- 15 Ritter 2009.
- 16 Author's interview with officials from twenty customs administrations.
- 17 See, for example, Crawford & Stecklow 2004, or Albright & Hinderstein 2005.
- 18 It should be noted that CBP has 'softened' its stance on ISF recently, for example, by showing restraint in enforcing the rule until March 2010, and relaxing some elements of interpretation and reporting timelines. However, the fundamental thrust of the initiative remains inappropriate in terms of risk management and commercial reality.
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ACHIEVING RESOURCE EFFICIENCY BY CUSTOMS ADMINISTRATIONS IN A CONSTRAINED ECONOMIC CLIMATE: A CRITICAL EXAMINATION

Michael Haughton and Sapna Isotupa¹

Abstract

Handling Customs' ever-expanding portfolio of goals requires significant expenditure, for example, for trade security programs such as the Customs-Trade Partnership Against Terrorism (C-TPAT). Simultaneously, economic depression jeopardises resource allocation to Customs. Thus, a crucial question is 'How can Customs utilise its limited resources most efficiently to achieve its mandated goals?' This paper addresses this question by examining initiatives requiring Customs to collaborate with external organisations in order to reap resource efficiencies. Among the paper's central contributions are guidelines to maximise and assess the resource efficiency value of these collaborations. The paper draws on theories such as inter-organisational citizenship theory and research methods such as computer simulation.

Introduction

This paper represents one of the outputs from an ongoing three-year research project on inter-organisational relationships within North America's trans-border supply chain environment. The project has a special focus on Canada. The relationships of interest are among the following organisations: (i) companies operating import/export supply chains that traverse Canada's borders, collectively referred to throughout this paper as the trade community, (ii) cross-border trucking firms, (iii) customs brokers, (iv) international freight forwarders, (v) Customs, and (vi) other government departments with regulatory authority in that environment. The overall project looks at these relationships from the standpoint of their engagement processes, enablers, challenges, and effectiveness. The research project's aim is to gain a deeper understanding of how the effectiveness of these relationships might be maximised. For this paper, the effectiveness measure of interest is Customs' resource efficiency in attaining its top priority goal of secure trans-border trade, that is, to minimise the risks of trans-border supply chains being conduits for or targets of harm to national security. The fact that this is a top priority is frequently affirmed in documented statements by Customs heads such as the Canada Borders Service Agency's President Stephen Rigby.²

Since cost containment is a key aspect of resource efficiency, this paper's central focus is on how a Customs agency's relationships with (a) Customs agencies in other countries and (b) the trade community can help to realise this goal at minimum cost. Thus, in pursuing initiatives to achieve this goal, Customs must be mindful of cost considerations. The paper's objective is to provide thorough treatment of four initiatives that involve collaborative working relationships with (a) and (b). The following are the initiatives studied: (1) mutual recognition of trade security programs in other nations, (2) facilitating engagement with the trade community, (3) modelling the cost of security program adoption, and (4)

collaboration to overcome border obstacles to legitimate supply chains – the latter three of which involve a Customs agency’s collaboration with the trade community. The remaining discussion that precedes treatment of these four initiatives is organised into two sections. In order, these are a brief review of the relevant literature and an explanation of the research methods used. Our conclusions and recommendations follow our discussion of the four initiatives.

Background literature

In light of this study’s focus on inter-organisational relationships involving Customs, it draws on theoretical foundations in the scholarly literature on inter-organisational relationship management. Indeed, relationships involving non-commercial organisations (for example, Customs) are not explicitly the purview of the inter-organisational relationship management literature. Yet, despite its commercial slant, that literature has yielded concepts and narratives that can be readily adapted to the kind of inter-organisational relationships covered in this paper. A prime example is the concept of inter-organisational citizenship behaviours (ICB) in the work of Autry, Skinner and Lamb (2008). Their work’s premise is that for organisational success to be attained, the individual’s citizenship role cannot be confined to the organisation that employs him/her but must expand to cover a network of organisations. With that premise, the authors extended citizenship norms for effective organisational performance into citizenship norms for effective inter-organisational (and intra-organisational) performance. An in-depth review of this and other works on inter-organisational relationships is beyond the scope of this paper. The interested reader is referred to Moskalev and Swensen (2007) and Werner (2002) as examples of works containing useful reviews of that literature.

The other scholarly literature in which the present study is rooted comprises studies recognising the impact of Customs on trans-border supply chains. Some of the earlier works include Carr and Crum (1995), Haughton and Desmeules (2001), and Heaver (1992). More recent works from the post-9/11 era include that by Haughton (2007) who developed a model to determine conditions under which companies might see economic wisdom in adopting Customs’ trade security programs. The present study builds on these works by casting more light on the role of Customs as a proactive and dynamic participant in inter-organisational relationships with parties such as members of the trade community. In studying the four initiatives stated in the paper’s introduction, the present study also extends this Journal’s tradition of research that is keenly tuned to Customs’ activities. These include Grainger (2008), Holloway (2009), Jansson (2009), and Lewis (2009).

Research methods

For this paper (and for the three-year project it is a part of), the core data collection falls into the class of unobtrusive methods (sometimes referred to as non-reactive or secondary methods). Detailed exposition on this class of methods can be found in, for example, Berg (2001) and Prior (2003). Applying the methods to the present research involved using publicly accessible documents and notes from meetings/conferences of stakeholders in North America’s trans-border supply chain environment. These activities, which began in May 2008, are summarised in Table 1 below. Archived documents we perused covered the post-9/11 period and comprised over 300 articles written by/for trans-border supply chain practitioners in journals, newsmagazines, newspapers, and newsletters/news-bulletins, over 30 reports from sectoral interest groups and think-tanks, and over 20 substantive reports maintained at the Canada Border Services Agency (CBSA) website. Four conferences and meetings also provided data sources that were either open to public access or to which research data collection access was granted (where appropriate and opportune, we also conducted informal and unstructured interviews of some attendees to gain sharper insights). The most significant of these sources was the Canadian Association of Importers and Exporters (CAIE) 18th Annual Conference (20-22 April 2009) on ‘Emerging issues in Customs and

trade compliance'. The conference produced 12 pages of notes capturing the delegates' and presenters' verbatim and paraphrased dialogue that is keyed to issues of inter-organisational relationships with Customs.

With the bulk of the data from these sources being qualitative, qualitative content analysis was a logical choice for inclusion among our data analysis methods. According to Patton, the method is defined as 'any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings' (Patton 2002, p. 453). Details of this method's logic, principles, and processes can be found in, for example, Berg (2001) and Prior (2003), and in cited sources for Hsieh and Shannon (2005). For greater depth and expositional clarity in the research, we complemented the qualitative content analysis with methods of scientific inquiry involving quantitative modelling techniques. One of these involved a queueing simulation (to investigate joint efforts by businesses and Customs to streamline truck queues at customs checkpoints). The other was spreadsheet modelling of formulae developed to provide some measure of quantitative precision for outcomes of various actions by Customs to achieve its security goals. The formulae are presented later in the paper.

Table 1: Structure of data collection

DATA SOURCE AND/OR ORGANISATION	DATA (Publicly available documents, notes from conferences and meetings, interview data)
Canadian Association of Importers and Exporters (CAIE ³)	<i>Tradeweek</i> (fortnightly newsletter); <i>I.E. Global</i> (bi-annual magazine); <i>I.E. Today</i> (daily bulletin); Conferences and seminars/workshops
Canadian Trucking Alliance (CTA) Ontario Trucking Association (OTA)	<i>Supply Chain Focus Quarterly</i> : (OTA's quarterly newsletter); <i>Annual Report</i> of the OTA; OTA Annual Convention; CTA site news items category for border issues; other OTA/CTA web-based documents (news/press releases, etc.)
Canadian Society of Customs Brokers (CSCB) Canadian International Freight Forwarders Association (CIFFA)	<i>Customs Today</i> (CSCB newsletter); <i>CSCB News and Events</i> ; <i>The Forwarder Magazine</i> (published 2-4 times a year); CSCB Annual Fall Conference; CIFFA site news items category for customs issues; other CSCB/CIFFA web-based documents (news/press releases, etc.)
Canadian Manufacturers & Exporters Association (CMEA)	<i>20/20</i> (CMEA magazine published 6 times a year); other CMEA web-based documents (news/press releases, etc.)
Canada Border Services Agency (CBSA)	CBSA web-site links to topics relevant to the study (e.g., the link titled 'Facilitating Trade'); other documents (news/press releases, etc.)
Sectoral Interest Groups (e.g., Canadian and United States [US] Chambers of Commerce)	Advocacy-orientated reports reflecting the perspectives of the trans-border trade sector members these groups represent
Think-Tanks and Research Centres (e.g., Hudson Institute)	Independent and commissioned reports (e.g., a US Customs and Border Protection [CBP]-sponsored report by the University of Virginia Center for Survey Research)
Article databases (e.g., ABI/Inform)	Post-9/11 practitioner articles (e.g., in the <i>Journal of Commerce</i> online and <i>World Trade Magazine</i>) reporting the perspectives of stakeholders in the trans-border trade environment

DATA SOURCE AND/OR ORGANISATION	DATA (Publicly available documents, notes from conferences and meetings, interview data)
The following meetings and conferences in Arizona: Border Trade Alliance (BTA) workshop in Yuma, 19 September 2008; Southern Arizona Logistics Education Organization (SALEO) in Tucson, 24 September 2008; border stakeholders/officials at the Nogales border connecting Sonora (Mexico) and Arizona, 13-14 November 2008	Perspectives on Mexico-to-US trade logistics issues from representatives of the trade sector, truck transportation and logistics sectors, city/state government agencies in Sonora, and US CBP and Department of Homeland Security (DHS)
CAIE 18th Annual Conference on ‘Emerging issues in Customs and Trade Compliance’, 20-22 April 2009	Canadian trans-border trade perspectives from conference speakers and delegates representing importers/exporters, Customs (Canada and US), and firms that deliver professional services in the areas of trans-border supply chains and security

Initiatives in the context of inter-organisational relationships

Initiative 1: Mutual Recognition Arrangements (MRAs)

A multi-country mutual recognition arrangement (MRA) means that Customs in each country accepts the other countries’ trade security standards as consistent with its own trade security standards. An example of this is the US’s acceptance of Canada’s Partners in Protection (PIP) program standards as being consistent with those of the Customs-Trade Partnership Against Terrorism (C-TPAT) program. The core logic of MRAs is well understood and indisputable. Specifically, a company that has had its supply chain security validated (certified) by one country participating in an MRA need not endure separate validations in other participating countries. Thus, within a single validation cycle (for example, every three years), a company’s costs of having its supply chain security undergo on-site validation audits by Customs will be lowered by the existence of MRAs among countries covered by the company’s trans-border operations. For Customs, this yields resource efficiency benefits in that supply chain validation (certification) expenditure (for staff and other resources deployed to validate companies) can be shared among multiple customs agencies. That is, each partner country in the MRA incurs only a fraction of the expenditure. This phenomenon may be modelled as in equation (1) below. In the equation θ_t , which measures validation costs as a multiple of inspection costs, is expressed as a function of the number of MRA partners (n). A value of $\theta = 10$ would mean that customs certification costs are 10 times greater than inspection costs (that is, the costs to inspect an individual shipment). The certification cost multiple that would apply in period t for a given partner country in the absence of an MRA is denoted $\bar{\theta}_t$. Equation (1) mathematically expresses our hypothesis that whenever a country is added to a mutual recognition program, certification cost multiple for each country already in the MRA is reduced by $100 \times (1 - \varpi)\%$ of what it was at the previous addition of a new country ($0 < \varpi < 1$). As an example, a value of $\varpi = 0.95$ would mean a 5% cost *reduction* for each country, even though each country need not have the same absolute value for certification cost (Table 3 presents the definition of each variable, and Figure 1 which will be discussed below also graphically clarifies how equation (1) behaves over time). Note that the actual value of ϖ for a given MRA would have to be estimated based on the particulars of that MRA.

$$\theta = \bar{\theta}_t \varpi^{(n-1)} \quad (1)$$

Despite these benefits, MRAs will incur costs associated with coordination across customs administrations. This can be inferred from the literature on the costs of inter-organisational coordination. For example, Gulati and Singh (1998) see coordination costs as those associated with activities among partners; these range from decomposing tasks among members to communication and joint decision making related to the accomplishment of set objectives. These costs are incurred because of inherent ongoing challenges of executing these activities. Other perspectives on the determinants of coordination costs include the costs of ‘setting up a relationship’ and search costs (Bakos & Brynjolfsson 1997), and structures for communication and authority for performing tasks and technology as a resource used in performing tasks (Kim 2000).

A general insight from the literature is that inter-organisational networks with more partners are more complex and thus costlier to coordinate. Yet, other authors have drawn on concepts such as learning, social trust, and interpersonal synergies to posit that while the marginal costs of coordination increase during the early stages of network (or alliance) formation, eventually, they can decrease as a network evolves over the long term. A detailed discussion appears in Chathoth, Heiman and Ungson (2005) where the central idea is that through experience gained over time, partners learn more about highly beneficial ways to reduce coordination costs, and they strengthen the social trust and interpersonal synergies that not only engender the sharing of cost reduction ideas but also enable partners to collaborate more effectively on reducing costs. A possible mathematical representation of the joint phenomena that coordination cost rises with network size and can fall over time is equation (2) below. The right-hand side of the equation yields average coordination cost per certified company per customs agency as a multiple of inspection cost. Note that inspection cost, unlike certification cost, is incurred by Customs at the border to perform inspections of individual shipments. The term ν gauges how fast the coordination cost increases with the number of countries (n), t is the number of periods (years) since the first certification and $\bar{\phi}$ is a non-negative constant to be empirically determined for the country under consideration. Equation (3) shows the aggregate of certification and coordination costs.

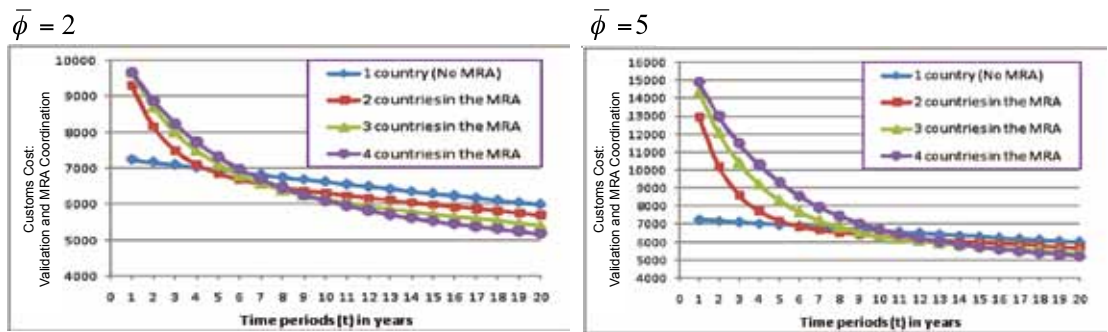
It should be noted that equation (2) is not the only way to mathematically express the ideas that coordination costs increase with the number of MRA partner countries and can decrease over time. Alternative expressions (full discussion of which is beyond the scope of this paper) can be developed for a given MRA to fit that MRA’s data on number of partners, how long the MRA has existed, and on its coordination costs. Given the availability of equally valid alternative mathematical expressions, equation (2) is only meant to be illustrative of the above ideas and should not be interpreted as the definitive mathematical expression of how n and t affect coordination costs. By extension, equation (3) is also meant to be illustrative. Ultimately, the outcome of importance is that the expression used by a particular MRA depicts a progressively beneficial relationship among the MRA partners. Figure 1 graphically depicts that outcome. The graphs in Figure 1 use the illustrative expression in (3) to demonstrate the general trajectory of costs over time for up to four partner countries (n) using the following arbitrarily chosen values:

$$\bar{\phi} = 2 \text{ and } 5; \nu = 0.5; \bar{\theta}_1 = 10; \bar{\theta}_t = 0.99\bar{\theta}_{t-1}; \omega = 0.95.$$

$$\text{Coordination cost as a multiple of inspection cost} = \phi = \bar{\phi} \left(\frac{n-1}{n-\nu} \right)^t; 0 \leq \nu < 1 \quad (2)$$

$$\text{Certification and coordination cost (multiple of inspection cost)} = \theta + \phi = \bar{\theta}_t \omega^{n-1} + \bar{\phi} \left(\frac{n-1}{n-\nu} \right)^t \quad (3)$$

Figure 1: Possible time series of customs certification and MRA coordination costs



The obvious implication from the preceding discussion is that if MRAs are to be sources of resource efficiency for Customs then emphasis must be placed on two key items: (a) continuous learning about supply chain security validation from past experience and from MRA partners and (b) strengthening social trust and interpersonal synergies among partners. That is, these items contribute to a key metric of MRA success: cost-effective attainment of national security priorities. Without doubt, these items are acknowledged as important in the trade security discourse we studied. For example, notions of social trust and interpersonal synergies were emphasised in a joint presentation by senior Canadian and US Customs officials during the aforementioned CAIE conference. The following paraphrased quote from the presentation illustrates: *‘He is not just my professional counterpart but also a friend; he is a straight shooter so I take him at his word when he makes commitments’*. Given the scholarly literature’s reasoning that strong interpersonal relationships across organisational boundaries are essential for strong inter-organisational relationships or partnerships (see, for example, Fawcett, Ellram & Ogden 2007; Handfield & Nichols, Jr 2002), this quote suggests a solid foundation for the Canada-US MRA. Viewed also through the lens of the inter-organisational citizenship behaviour (ICB) model of Autry, Skinner and Lamb (2008), the Canada-US MRA appears to capture essential behaviours of a structurally sound relationship. These include *altruism* (behaviour directed at helping a partner solve problems or acquire needed skills and knowledge, *constructiveness* (interest and activity in inter-organisational affairs affecting the relationship), and *advancement* (taking steps to improve relationships, knowledge bases, and integrated processes).

However, in order for the Canada-US MRA to be held up as a benchmark, the relationship’s foundation and behaviours must translate into a particular metric of success: cost efficient use of resources to attain or surpass security goals. Without mechanisms to facilitate the recording, tracking, and analysis of the metric, there will always be doubt about whether success is being realised. That is, MRA partners must operate with knowledge or reasonable prediction of the cost trajectory. Thus, via equation (3), one of our contributions is to propose a model for engendering objective depiction of costs in MRAs. A companion contribution of the model is to help draw attention to the primary cost drivers in an MRA, that is, the costs of performing security assessments and coordinating the MRA are driven by how well the MRA partnership is being managed to facilitate continuous learning/improvement and interpersonal synergies. Such attention can serve as a basis for deep, focused, and *objective* discussion among MRA partners about specific cost containment initiatives that are consistent with security priorities.

Coverage of potential cost containment initiatives is beyond the scope of this paper but we can suggest a conceptual model to guide the choice of initiatives as well as insights for ensuring objectivity and economic rationality in discussions about initiatives. The suggested model is the generic four-phase managerial decision cycle due to Herbert A Simon,⁴ one of the foremost thinkers on decision science (see

Figure 2 below). The outcome from the phase involving search processes would be potentially promising alternatives (in the context of MRAs, sources of ideas for these may range from the extant literature on exemplary inter-organisational relationships to more direct sources such as a nation's own experiences with joint multi-national government undertakings). As well as consistency with security priorities, a key guideline to ensure that rational ideas emerge is that the cost implications of the ideas must not be overlooked. The next phase, which involves more rigorous appraisal of the proposed alternatives, must be grounded in analytical precision about how each initiative might impact cost parameters. As shown in equation (3) these parameters include ϖ (previously defined in discussing equation (1), can be viewed as capturing the learning rate as countries are added to an MRA) and $\bar{\theta}_i$ (also previously defined, can be viewed as depicting an individual customs agency's rate of learning about how to reduce the agency's certification costs). Using an analytical framework such as equation (3), the questions that MRA partners should address in order to remain focused on how cost-effectively an initiative meets or exceeds security priorities include:

1. When we add countries to an MRA, how can we accelerate the learning rate, that is, reduce ϖ , in order to help reduce security assessment costs?
2. Over time, how can we as an independent customs agency accelerate our internal learning rate, that is, reduce $\bar{\theta}_i$, in order to help reduce security assessment costs?
3. How should we structure the business interaction among MRA partners in order to reduce coordination costs, that is, reduce the parenthetical expression in equation (3)?

Figure 2: The perpetual cycle of managerial decision making



Source: Herbert A Simon 1976, *Administrative behavior*, Free Press, New York.

Initiative 2: Facilitating engagement with the trade community

Our research on the Canadian trans-border supply chain context yields incontrovertible evidence of robust engagement between Customs and the trade community. In particular, it appears that both trade community and Customs provide formal institutional frameworks for facilitating the engagement. On the Customs side in Canada, for example, we found that in addition to the more prominent and high-level frameworks such as the Security and Prosperity Partnership (SPP) of North America, there are formal mechanisms for engagement at the more operational level. Primary among these seem to be the Border

Commercial Consultative Committee (BCCC) and the eManifest Stakeholder Partnership Network. On the trade community's side, the formal mechanisms are best exemplified by the CAIE. Specifically, the CAIE operates two committees to formally liaise with Customs: the Customs Legislative and Trade Security committees. Beyond these committees, there are several formal and semi-formal engagement modalities to further enrich the engagement between Customs and the trade community.

A case in point is that CAIE publications such as *Tradeweek* (fortnightly newsletter) and *I.E. Global* (bi-annual magazine) frequently contain articles authored by Customs officials from, for example, the CBSA, US CBP, and the World Customs Organization (WCO). In addition to communicating updates on customs visions, plans, and programs, these articles serve the important function of reiterating customs agencies' earnest pleas for input on future customs trade and security initiatives. Aside from the conventional engagement forums such as town hall meetings, other important media for engagement comprise conferences and workshops hosted by groups with commercial interests in trans-border supply chains. At these conferences/workshops by groups such as Canada's CAIE and Supply Chain Logistics Canada and the US's BTA (representing businesses operating at US/Mexico borders such as Arizona/Sonora), dialogue between Customs and the trade community is a key characteristic. Perhaps most significant among these media in Canada is the CAIE annual conference on 'Emerging issues in Customs and Trade Compliance'. As a matter of course, the conference features keynote addresses and session presentations by customs officials, thus giving delegates from the trade community another set of opportunities to engage with Customs.

Despite the existence and use of these and a host of other means of engagement (for example, firms inviting customs officials to visit their facilities), we do not declare that the relationship between Customs and the trade community is frictionless. The fact is that while the trade community has had reason to commend the government for progress on certain aspects of trade security, it continues to identify limitations and remains a vocal critic of Customs. Table 2 below illustrates this with a sample of trade publication headlines representing voices within the trade community. Indeed, the qualitative data gleaned from the aforementioned CAIE conference and from an online survey we conducted, reinforce what the archival research suggests is a widely held belief that Customs has not progressed sufficiently far or fast in dealing with the trade community's concerns (the targeted respondents were the community's traders, customs brokers, freight forwarders, and trans-border carriers). The reinforcing evidence is based on responses from a convenience sample of the targeted population to the specific question of '*how satisfied are you with the efforts of Customs in facilitating your company's success in trans-border operations?*' On a 7-point Likert scale (with higher numbers corresponding to greater levels of satisfaction), respondents rated the CBSA at 5.00 and the US CBP at 4.71.⁵ These were low in relation to how they rated the efforts of other external groups such as brokers, forwarders, and supply chain partners. Our inference from the plethora of explanations contained in the qualitative data is that they are all variations of the trade community's mantra that 'security trumps trade'.⁶ Though it can be debated whether this mantra is the reality of trade security programs or merely the trans-border trade community's jaundiced view of those programs, one thing is certain: the trade community has not signed on to these programs to the extent that Customs would like. For example, in October 2006 less than 2% of importers involved in significant cross-border movement of goods into Canada adopted the PIP program⁷ and the current penetration rate is estimated at a mere 7% of Canadian companies.⁸

Table 2: Articles citing trade community's concerns about Customs/Canada-US borders

1. **'Canadian border crossings: from bad to worse?'**, *Land Line* article posted at I.E. Canada website, 17 April 2009.
2. **'Border U.S. regulatory barriers mean increased costs for Canadian industry and its customers'**, *NB Business Journal* article posted at I.E. Canada website, 15 April 2009.
3. **'Stuck at the border'**, (*National Post* article posted at I.E. Canada website, 6 April 2009).
4. **'Overlapping security hurting truckers at U.S. border, Canadian officials say'**, *Transport Topics*, 3 March 2008, no. 3782, p. 6.
5. **'Border bottlenecks, regulations top concerns for Ontario shippers, carriers'**, *Transport Topics*, 5 November 2007, no. 3766, pp. 1, 10.
6. **'We need harmony in U.S. border security'**, *The Ottawa Citizen*, 23 May 2007, p. A15.
7. **'Panel: U.S.-Canada trade profitable, but difficult'**, *Transport Topics*, 16 April 2007, no. 3737, p. 43.
8. **'Smart border vision blurred'**, *Truck News*, March 2007, vol. 27, no. 3, p. 44.
9. **'FAST needs to become more transparent'**, *Truck News*, February 2007, vol. 27, no. 2, p. 70.
10. **'Border security is border absurdity'**, *Truck News*, October 2006, vol. 26, no. 10, p. 36.
11. **'Border boondoggle'**, *Truck News*, November 2006, vol. 26, no. 11, p. A20.
12. **'Security bottlenecks snarl U.S.-Canada trade'**, *Reuters*, 5 March 2007.

The commercial sector's low adoption rates of trade security programs represent a curious state of affairs for economically efficient attainment of Customs' security priorities. On the one hand, higher penetration rates will directly enable realisation of not only those priorities but also, in all likelihood, of efficiencies in Customs' border operations. Sources of efficiencies include less effort to conduct secondary inspection of traders who are certified under programs such as C-TPAT and PIP. But high penetration rates require commercial stakeholders in the trans-border trade community to be convinced that they will also gain profit-enhancing efficiencies from certification. This raises the question of what is required to get beyond the current low penetration rates. Indeed, Customs and affiliated agencies have poured much effort into addressing this matter by extolling the business benefits of program adoption. This is exemplified by a DHS-sponsored report⁹ and presentations by customs officials at the recent CAIE conference citing benefits such as fewer and faster inspections. Yet, it is clear that, despite some success from these efforts, one source of opposition (which seems inextricably tied to the mantra of 'security trumps trade') remains persistent: the perception that Customs is yet to truly understand the business realities of trans-border supply chain operations. This perception might have some evidentiary basis because, for example, the 56-page CBP-sponsored/authored report to provide traders with guidelines for best supply chain security practices contains just two brief allusions to the cost of security practices.¹⁰

To provide a conceptual basis for our suggestion that limited focus on cost might not be helpful in realising security goals, we illustrate the suggestion with an abstract model of economic equilibrium for security. The model, which draws on the work of Prentice and Hickson (2007), is in Figure 3. The model depicts the interaction of security benefits (for both the private sector and the public sector; that is, the larger society) and security costs. Benefits for the private sector include protection of private assets associated with trans-border supply chain operations (for example, handling and transport equipment). The larger society's benefits, which can be a positive externality of the private sector's security investment, include safety of citizens.¹¹ For simplicity in presenting the model, the marginal cost of increased security is

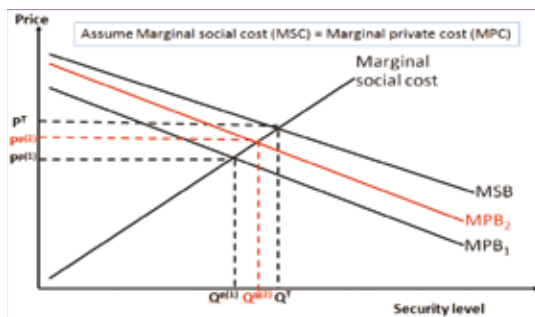
assumed to be the same whether the spending is by the private sector or the public sector; thus, marginal private cost (MPC) = marginal social cost (MSC).

The left panel of the figure shows that efforts by Customs to convince the trade community that the benefits are greater than perceived will shift the curve for marginal private costs upward. A shift from MPB_1 to MPB_2 raises the level of security that the private sector would be willing to spend on (from $Q^{p(1)}$ to $Q^{p(2)}$) and the total private sector expenditure on security (from $P^{p(1)} \times Q^{p(1)}$ to $P^{p(2)} \times Q^{p(2)}$). However, such efforts cannot be regarded as truly beneficial if they merely result in increasing the private sector's share of security without increasing the total level of security, Q^T . What might be a far more certain way to increase the total security level is to discover ways of reducing security costs. The right panel of Figure 3 shows the theoretically expected impact of reducing costs, that is, shifting the MSC curve downward. A shift from MSC_1 to MSC_2 raises the equilibrium level of total security from $Q^{T(1)}$ to $Q^{T(2)}$.

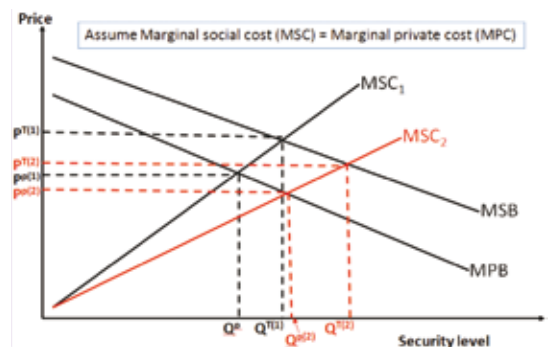
Based on all of this, a logical deduction from the conceptual model in Figure 3 is that efforts to promote security program benefits to the trade community, though valid, must be complemented by a persistent search for ways to minimise cost. In engaging with each other on cost-reduction efforts, Customs and the trade community should be prepared to have frank discussions about a host of issues that might arise. Among these issues are (a) possible incentives (for example, subsidies) for the trade community to bridge the gap between private and total expenditure on security, and (b) identifying which aspect of security would be more economically undertaken by Customs and vis-à-vis the private sector.

Figure 3: The impacts of different courses of action by Customs regarding security

Impact of effectively marketing the supply chain security benefits to the trade community



Impact of working with the trade community to reduce the cost of supply chain security



Initiative 3: Modelling the cost of security program adoption

Based on the preceding discussions of Initiative 2 concerning the need to complement program promotion efforts with a focus on cost minimisation, it follows that the dialogue between Customs and the trade community must evince clear and mutual understanding of the relevant cost implications of program adoption for **both** Customs and the trade community. As such, we propose a set of mathematical models to help visualise these implications and their determinants. Without the logical and objective thinking that is stimulated by visualisation, the dialogue risks descending into platitudinous and subjective assertions that merely pit a customs agency's capability to argue for program adoption against trade community members' capability to assert the financial burden of program adoption. This general notion is rooted in the supply chain management literature on inter-organisational partnerships. That is, a frank, transparent and objective conversation of how a course of action might affect each supply chain partner is an essential basis for a mutually beneficial partnership. The ensuing discussion illustrates this by

clarifying the development of the cost models and, by drawing on known and reasonable estimates of the model's parameters, demonstrating the kind of analysis they can be used for in the Customs-trade engagement.

A natural starting point for the modelling is the fundamental question of why a company operating trans-border supply chains should become validated/certified under trade security programs such as PIP and C-TPAT/FAST (Free and Secure Trade)? The obvious answer from the economic theory of the firm is that the company should do so if becoming certified is more profitable than not being validated. More formally, consider a company that operates in a trans-border setting that is governed by the parameters in Table 3 below (parameter estimates and their sources are also shown). Based on these parameters, a trader opting out of validation would have an annual total cost of customs inspection equal to:

$$\delta_i c q_i \beta \quad (4)$$

A trader that chooses to become certified would have a total cost (comprising inspection cost and certification cost) of:

$$\delta_i c q_i \alpha + \frac{\varepsilon_i \theta c}{3} \quad (5)$$

Since a rational un-validated trader will be expected to choose between remaining un-certified and becoming certified based on the cost comparison of (4) and (5), the conditions under which certification makes sense for the trader can be expressed as:

$$\delta_i c q_i \alpha + \frac{\varepsilon_i \theta c}{3} < \delta_i c q_i \beta; \text{ i.e., } \frac{\varepsilon_i \theta}{3} < \delta_i q_i (\beta - \alpha) \text{ OR } q_i > \frac{\varepsilon_i \theta}{3 \delta_i (\beta - \alpha)} \quad (6)$$

There is no guarantee that this condition will be met for every trader (for example, those with low volumes of trans-border commerce). This assertion from the inequality in (6) is supported by surveys suggesting that traders with small volumes of trans-border trade tend to see certification in trade security programs as an economically inferior option.¹² Therefore, what seems to be Customs' ultimate goal of 100% trader participation in security programs is unlikely to be met. From the standpoint of pursuing this goal, there are several broad initiatives for Customs to help make the inequality easier to satisfy, that is, by reducing the right-hand side of the inequality in (6). For example, through certification audits that expose Customs to innovative supply chain security practices of firms, personnel conducting these audits should also have a keen eye on which practices are most cost-effective. This would help to reduce the right-hand side of the inequality by reducing the firms' cost to become certified and undergo certification audits ($\varepsilon_i \theta$) and by reducing its rate of secondary inspection (α). As implied earlier in this paper, the issue of cost-effectiveness should be more prominent in subsequent catalogues on best practices. An excellent guide for doing so is the work by Gutiérrez et al. (2007).

Table 3: Some key factors influencing the cost of operations for Customs and for trans-border supply chains

Variable/factor	Symbol/notation	Estimate	Estimate source or explanation
Unit cost to Customs for a secondary inspection	c	\$1	Normalised to unity
Proportion of traffic that is certified under Customs-trade security programs	p	0.14-0.27	Formula CAIE Conference
Proportion of traders that are certified/validated (assumption that high volume traders tend be certified earlier than low volume traders)	p^2	0.07	Field notes on PIP
Number of importers	N	31343	CAIE Conference
Mean volume of traffic (trips) per year per trader	q	28	CAIE Conference
Rate of inspection of certified truck traffic	α	1/6	CAIE Conference
Rate of inspection of uncertified truck traffic	β	1/2	Conference
Certification cost as a multiple of secondary inspection cost in time period t ($\bar{\theta}_t = 2, 4, 8, 10$)	$\bar{\theta}_t$	$0.99\bar{\theta}_{t-1}$	Estimated for illustration
Number of countries in the MRA the customs agency participates in	n	3	Estimated for illustration
Whenever a country joins an MRA, the certification cost multiple for each country already in the MRA becomes 100 ω % of what it was at the previous addition of a new country	ω	0.95	Estimated for illustration
A parameter ($0 < v < 1$) to gauge the rate of increase in coordination costs as new countries are added to an MRA	v	0.5	Estimated for illustration
A parameter to indicate the size of coordination cost relative to inspection cost	ϕ	5	Estimated for illustration
Number of countries in the MRA the customs agency participates in	n	3	Estimated for illustration
Unit cost to the i^{th} trader for a secondary inspection	$\delta_i c$	None	
Volume of traffic (trips) for per year for the i^{th} trader	q_i	None	
Unit cost of triennial supply chain security validation (certification) audit for the i^{th} trader	$\varepsilon_i \theta c$	None	

Considering the Customs’ cost along with traders’ cost highlights that apprising traders of cost-effective best practices must be among a customs agency’s essential knowledge sharing and engagement strategies. The formula in (7) depicts a customs agency cost. As with the traders’ cost model, the formula is based on the information in Table 3. The formula shows Customs’ total cost as the sum of costs to conduct inspections at the border ($cqN(p\alpha + (1 - p)\beta)q$), costs to conduct supply chain security validation/certification audits (the formula’s second compound term), and costs to coordinate activities among MRA partners (the last compound term).

$$\begin{aligned}
& cqN(p\alpha + (1-p)\beta) + cNp^2\left(\frac{\bar{\theta}_t\varpi^{n-1}}{3}\right) + \bar{\phi}cNp^2\left(\frac{n-1}{n-v}\right)^t \\
& = cN\left((p\alpha + (1-p)\beta)q + p^2\left(\frac{\bar{\theta}_t\varpi^{n-1}}{3}\right) + p^2\bar{\phi}\left(\frac{n-1}{n-v}\right)^t\right) \quad (7)
\end{aligned}$$

The formula's graphical depiction of how total cost behaves with increases in the proportion of traders whose trans-border supply chains are certified under governments' security programs (p^2) for different values of certification cost as a multiple of shipment inspection cost ($\bar{\theta}_1 = 2, 4, 8, 10$) is in Figure 4 below. The graph assumes that the progress of p^2 from its current level of approximately 0.07 towards $p^2 = 1$ occurs uniformly over a four-year period (that is, $t = 1, 2, 3, 4$). The graph highlights that as p^2 increases, total cost falls then eventually increases and that the point at which the cost increases begin depends on $\bar{\theta}_1$. For example, when that parameter is equal to 2, customs costs of running the validation regime exceed the costs for border inspections when approximately 60% of the traders are certified. The corresponding turning point is 40% when the parameter is equal to 10. True, there is little doubt that higher values of p^2 are likely to enhance security so it is worthwhile to pursue higher values. Nonetheless, the core message to be taken from the graphical analysis cannot be overlooked. It is that if Customs is to be cost-effective in its efforts to increase the percentage of traders that are certified, the cost to audit and certify the security of traders' supply chains must be a prime target for efforts to contain cost.

A related message is that Customs is more likely to succeed in those efforts when it has the trade community's support, for example, promptly providing information that Customs requires for certification audits. This underscores the importance of mutual dependency in achieving cost efficiency for all parties. A company's efforts to make the audit process more efficient for Customs can also enhance that company's efficiency, for example, its personnel might not have to be taken away from their normal job functions for long periods in order to be involved in the audit. Customs, in its best practices catalogue, should document the cases of audit efficiency as benchmarks. For companies that are yet to be validated, these cases affirm that the validation process can be cost-effective and thus help to overcome one source of potential resistance to certification. The process by which both Customs and companies benefit from these two inter-organisational citizenship acts (companies facilitating the audit and Customs disseminating cost-effective best practices) are summarised in Table 4 below.

Figure 4: Impact of certification/validation levels on customs cost



Table 4: Processes of benefits from Customs-Trade inter-organisational citizenship

ACTS OF INTER-ORGANISATIONAL CITIZENSHIP		
	Company	Customs
OUTCOMES	Efficiently facilitate Customs personnel performing validation (certification) audits	Disseminate companies' cost-effective best practices for both validation audits and supply chain security
Reduction in the company's certification cost ($\epsilon i \theta c$)	More efficient facilitation can automatically translate to more efficiency for the company itself	Efficient facilitation practices can be adopted by certified companies for future audits and by other companies for the first audit
Reduction in Customs, cost to validate/certify companies (θc)	Customs benefits directly from more efficient facilitation by company	Successfully encouraging un-certified companies to become certified will raise a customs agency's experiential learning and competence in doing cost-effective audits
Larger proportion of firms becoming certified (p^2)	Provides solid empirical data for Customs to use in encouraging un-certified companies to seek certification	

Initiative 4: Collaboration to overcome border obstacles to legitimate supply chains

Particularly since the tragic events of 9/11, the discourse among stakeholders has unearthed a wide range of suggestions to overcome unnecessary obstacles to legitimate trans-border supply chains. The suggestions are covered in reports by stakeholder groups such as the Ontario Chamber of Commerce¹³ and the Conference Board of Canada¹⁴ as well as in a variety of other articles in sources such as news magazines. The suggestions include actions under the control of border authorities (for example, processing rules such as differential treatment of shipments based on type such as FAST versus non-FAST) and under the control of companies that cross the border (for example, inventory stockpiling, reconfiguring trans-border supply chain networks, and dynamically modifying the routing and scheduling of trans-border shipments). To complement suggestions in the practitioner discourse, we have proposed additional ones based on concepts from inventory management and queueing (waiting line) theories. To carefully evaluate the efficacy of the suggestions, we used the Arena software to build and to continue refining a suite of computer simulation models to capture the essential operating realities of North American border crossings. Of immediate interest to the present research are suggestions that depend on meaningful inter-organisational cooperation.

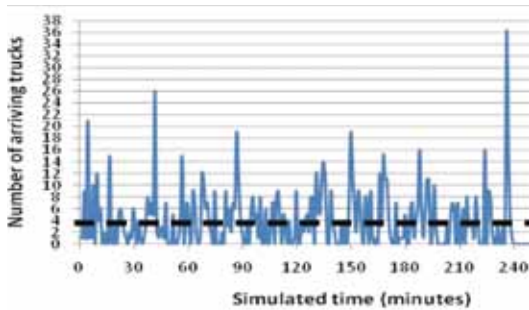
The suggestion we focus on here is based on a notion that is rooted in the academic literature on managing queue operations. It is to smooth the flow of commercial traffic through border crossings by means of what is essentially an appointment system. This traffic smoothing suggestion requires inter-organisational cooperation for at least two reasons. First, setting each truck's (appointed) time of arrival to the border requires cooperation between Customs and trans-border trucking companies and/or among trans-border trucking companies (for example, negotiation to avoid consistently disadvantaging any firm with inconvenient appointments). Second, as in a doctor's office where doctors and other employees have a tacit agreement to be available to process patients at the time of their appointment, Customs would be expected to provide timely processing to each truck that complies with the appointment system. That is, two necessary conditions for the system to be effective are (a) Customs cooperates by fulfilling its implicit obligation to minimise (within reason) deviations from the planned processing times and (b) trucking firms cooperate by arriving at their appointed times (again within reason).

Figure 5 below depicts the kind of behaviour change that is required for an appointment system to work. Part A of the figure is for the arrival patterns (both based on an average of 3.91 trucks arriving per minute). One pattern is unstable: having coefficient of variation for time between truck arrivals equal to 2.8 (that is, the type of pattern that might result without an appointment system). The horizontal dotted line is one example of transitioning to an appointment system. Part B depicts a corresponding transition for Customs: reducing the coefficient of variation of processing times from 1 to 0.33 (dotted line in the graph) without changing mean processing time (equal to 1 minute). We present findings on the expected effects of these behavioural changes using a computer simulation model of operations at the Detroit-Windsor border. In using a truck appointment system as the focal initiative, our purpose is to realise two research objectives concerning this paper's core theme of resource efficiency in accomplishing Customs' priorities. One is to demonstrate the role of computer simulation as a tool to examine the operational-level implications of any specified initiative in terms of its potential impacts on Customs' resource efficiency. The second objective is to present insights on the issues and the types of simulation analyses that are almost certainly relevant to any initiative that depends on significant inter-organisational relationships between Customs and other parties.

Figure 5: Examples of behavioural changes required for effective truck appointment systems

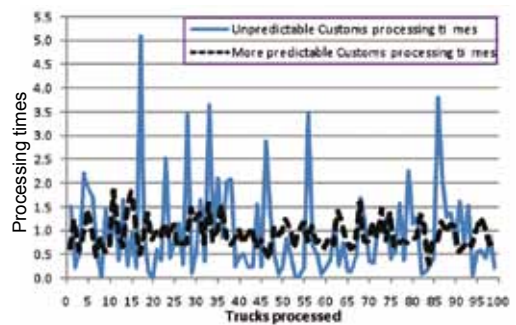
Part A:

Trucking companies' transition from random arrival pattern to stabilised arrival pattern



Part B:

Transition from unpredictable to more predictable processing times by Customs



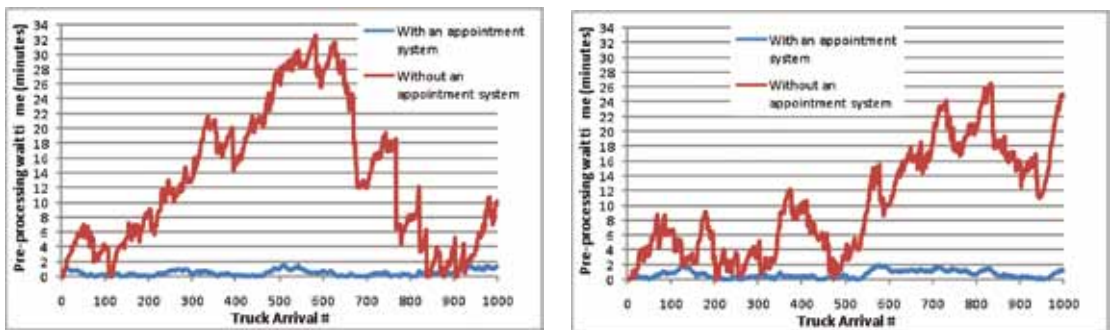
For expositional simplicity and without loss of generality, we limit the results presented herein to primary inspection at Detroit-Windsor and ignore shipment distinctions such as FAST versus non-FAST (a separate research paper is required to properly cover such details in our simulation work, which covers truck processing operations from a truck’s arrival through to its exit from secondary inspection). Table 5 below compares the results for the scenario of no appointment system (coefficient of variation equals 1 for processing times and 2.83 for time between truck arrivals) with the results for an appointment system (coefficient of variation equals 0.33 for processing times and 0 for time between truck arrivals). The table shows the improvements with respect to relevant metrics for both trucking companies and Customs: waiting time, congestion, and processing resources (primary inspection booths). Figure 6 graphs the improvements with respect to the level and uncertainty of waiting time for two of the simulated days in the experiments. The graphs show that without an appointment system, wait times are not only long but also highly unpredictable. With the introduction of an appointment system, the wait times are much smaller as they stay within a narrow band that rarely exceeds one minute.

It should be noted that the inter-organisational citizenship behaviour necessary for reaping these efficiency gains goes beyond each party’s independent action to make transitions such as those in Figure 5. For example, while Customs can attain service time consistency through approaches such as providing front-line officers with training and technology, trucking companies also play an important role in service time consistency. That role covers basic things such as having the proper documentation available upon arrival at the border crossing. Naturally, Customs would be expected to reciprocate (that is, facilitate the required behavioural changes among truckers). After all, as alluded to throughout this paper, for Customs to optimise gains in efficiency gains, selfishly forcing changes on the trade community is unlikely to be helpful. What seems more helpful is to be a true inter-organisational citizen in its engagement with the trade community.

Table 5: Efficiency improvement benefits of an appointment system

	QUANTITATIVE IMPROVEMENTS	CONCLUSION: APPOINTMENT SYSTEM BENEFITS
Average time a truck waits before being processed	Reduced from 9.74 minutes to 0.53 minutes	Less time wasted at the border
Upper limit of 95% confidence interval for waiting time	Reduced from 18.63 minutes to 0.94 minutes	Significantly less uncertainty in freight delivery planning
Average number of trucks waiting to be processed at any given time	Reduced from 38 trucks to 2 trucks	Significantly less truck congestion at the border crossing
Number of primary customs officers required to limit the average wait time to 0.53 minutes (i.e., average time attainable with an appointment system)	Reduced from 8 booths to 4 booths	Significantly less border resources required to process trucks

Figure 6: Impact of an appointment system on wait times for two simulated days



Conclusions and recommendations

Customs work has witnessed an evolution from the primacy of duty collection as a primary goal through to today’s expanded portfolio of goals in which security and trade facilitation are top priorities. This requires significant expenditure on manpower and technology for programs and initiatives to support those goals. Simultaneously, the currently depressed economic climate jeopardises resource allocation to Customs. This behoves Customs to be relentless in seeking ways to accomplish these goals at minimum cost. This paper represents an effort to explicitly bring cost considerations to the forefront of discussions about initiatives to accomplish the goals of Customs. In particular, the paper systematically examines four initiatives that require a nation’s customs agency to develop and maintain productive working relationships with two external parties: customs agencies in other countries and the trade community. The initiatives examined are: (1) mutual recognition of trade security programs in other nations, (2) facilitating engagement with the trade community, (3) modelling the cost of security program adoption, and (4) collaboration to overcome border obstacles to legitimate supply chains.

Embedded in our examination of these issues are three key recommendations. The first is in regard to mathematical models we presented to illustrate a cost-focused approach to analysing initiatives. We recommend the building of similar models that accurately portray the realities of a given trans-border context. The real value of such models rests in their ability to help bring clarity to how costs might behave in response to a given course of action, and to foster logical and objective appraisal of the efficacy of contemplated actions. Our second recommendation concerns the content of the engagement between Customs and the trade community. Although our qualitative research data evince a vibrant engagement that is well supported by both formal institutional process (for example, Canada's BCCC) and less formal means (for example, networking at CAIE conferences/meetings), we found no clear evidence of a focus on cost minimisation in pursuing security priorities. In fact, our reading of the data is that much of the dialogue between the two parties features a strong emphasis on urging the trade community members to become certified under trade security programs.

While it is risky to definitively conclude that this emphasis overwhelms the cost focus, we do underline that the dialogue must demonstrate cognisance of cost issues. More specifically, through means such as sharing its knowledge of cost-effective supply chain security practices with the trade community, Customs can help to lower one barrier to certification, that is, the cost of certification. We see this as serving to vividly cast Customs as a genuine inter-organisational citizen in the trans-border trade environment rather than as a government body so focused on pursuing its own agenda that it becomes inadequately attentive to the trade community's real concerns. This point about inter-organisational citizenship behaviour is especially germane to our final recommendation: evaluate suggestions to overcome border obstacles to legitimate trans-border supply chains using simulation models that capture performance metrics *of relevance to all parties*. This recommendation stems from our previously noted observation that the discourse among the trans-border environment's commercial stakeholders reveals a plethora of suggestions for overcoming the perceived obstacles. On the surface, many of the suggestions seem to make sense intuitively. However, unless the operational realities associated with a suggestion are rigorously tested to gauge its effects on the different parties, implementing it would be irresponsible. Therefore, along the lines of our computer simulation study of an appointment system for trucks, we recommend judicious use of computer simulation to test suggestions of interest. Keys to judicious use include clear understanding of obligations that the suggestion might impose on the various parties (Customs, the trade community, etc.). This requires honest, open, and objective dialogue that conforms to exemplary inter-organisational citizenship behaviour. Such dialogue will also help to ensure that the computer simulation model's performance metrics reflect what is important to these parties.

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Endnotes

- 1 The authors are grateful to the Social Sciences and Humanities Research Council of Canada (SSHRC) for its financial support of this research project (Research Grant #864-2007-0170).
- 2 Stephen Rigby 2009, 'Towards modern border management', *I.E. Global*, Spring, pp. 16-18.
- 3 Also known as IE Canada.
- 4 Examples of Simon's work that readers may consult include Simon 1955, 1972 and 1976.
- 5 Though we recognise the strong corroboration of our survey insights with observations from other empirical methods we employed, we caution that our survey results are based on a small convenience sample. This sampling procedure suffices for our research objectives which do not include making authoritative statistical generalisations based on strict probability sampling.
- 6 An example of reports that capture this concern is the joint Canadian and US Chambers of Commerce report titled, 'Finding the balance: reducing border costs while strengthening security', viewed 13 July 2008, www.chamber.previewsite.ca/images/uploads/Reports/finding-the-balance.pdf.
- 7 <http://cbsa-asfc.gc.ca/agency-agence/reports-rapports/ae-ve/2006/pip-pep-eng.html>.
- 8 Presentation by CBSA official during session titled 'Harmonization of C-TPAT, PIP and AEO' at CAIE 18th Annual Conference on 'Emerging issues in customs and trade compliance', 20-22 April 2009.
- 9 See Diop & Hartman 2007.
- 10 *Supply chain security best practices catalog*, pp. 1-2, 17-18, viewed 11 July 2008, www.pac-am.com/docs/CTPATBestPractices.pdf.
- 11 See Prentice & Hickson (2007) for a detailed discussion of security benefits.
- 12 See, for example, the report on such a survey by the Ontario Chamber of Commerce, 'Easing the chokepoints: a plan for an efficient Canada-US border', pp. 49-50, viewed 1 July 2008, www.ontariochamber.org/Policy/Reports/340.
- 13 Examples are 'Easing the chokepoints: a plan for an efficient Canada-US border', viewed 1 July 2008, www.ontariochamber.org/Policy/Reports/340 and '2008-2009 Ontario-US border policies', viewed 20 September 2008, www.ontariochamber.org/Policy/Reports/412.
- 14 'Is just-in-case replacing just-in-time?: How cross-border trading behaviour has changed since 9/11', viewed 11 July 2008, www.conferenceboard.ca/documents.aspx?DID=2050.

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RECENT STIMULUS PACKAGES AND WTO LAW ON SUBSIDIES

Santiago Ibáñez Marsilla

Abstract

Major world economies are simultaneously experiencing deep recession due to the world economic crisis, and in attempting to contain the extent of damage, governments have been introducing unprecedented stimulus packages. These stimulus programs raise many concerns from the perspective of international trade rules. This paper analyses those concerns in relation to possible conflicts with the World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures (ASCM). The concept of 'subsidy' in WTO law is discussed, together with the analysis of two salient measures, export credit support and the automobile industry, that are currently being adopted in response to the current crisis. A further critical analysis is provided on recent developments in the review of the ASCM as part of the Doha Round.

1. Introduction

Amid the current economic crisis, that has thrown the major world economies into a simultaneous deep recession, governments are struggling to contain the extent of the damage. Due to the apparent failure of past economic policies that encouraged minimum State intervention and regulation of the markets, previously regarded as 'heterodox' economic policies are the order of the day and, as a result, unprecedented stimulus packages have been unleashed.¹ These stimulus programs raise many concerns from the perspective of international trade rules. In this paper we will analyse possible conflicts with the World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures (ASCM). The relevance of this issue is highlighted by the fact that, in the context of the present financial and economic crisis, subsidies in developed countries have so far been the measure causing most concern for the international trade regime.²

In Section 2, we elaborate the concept of subsidy in WTO law³ and establish the elements for an analysis of different measures adopted in response to the current crisis, which is presented in Section 3. Then, in Section 4, we provide a critical analysis of recent developments in the review of the ASCM as part of the Doha Round.

2. Subsidies from the WTO law perspective

Article 1 of the ASCM defines a subsidy as a financial contribution by a government or any public body within the territory of a Member by which a benefit is conferred.⁴ 'Financial contribution' and 'benefit' are two different legal elements of the concept of subsidy that require a separate analysis.⁵ While the 'financial contribution' relates to an action of the government, the 'benefit' focuses on the recipient.⁶ The 'financial contribution' is to be determined in 'the actual amounts *provided* by a government and not just those *authorized* or *appropriated* in its budget for that year'.⁷ The Appellate Body (AB) has interpreted that 'a 'benefit' does not exist in the abstract, but must be received and enjoyed by a beneficiary or

recipient. Logically, a ‘benefit’ can be said to arise only if a person, natural or legal, or a group of persons, has in fact received something. The term ‘benefit’, therefore, implies that there must be a recipient’.⁸ The benchmark to identify a ‘benefit’ is the marketplace, therefore a ‘benefit’ exists when the recipient sees their wealth increased in respect to what would have been the result if only market forces were in play. As the AB has stated:

We also believe that the word ‘benefit’, as used in Article 1.1(b), implies some kind of comparison. This must be so, for there can be no ‘benefit’ to the recipient unless the ‘financial contribution’ makes the recipient ‘better off’ than it would otherwise have been, absent that contribution. In our view, the marketplace provides an appropriate basis for comparison in determining whether a ‘benefit’ has been ‘conferred’, because the trade-distorting potential of a ‘financial contribution’ can be identified by determining whether the recipient has received a ‘financial contribution’ on terms more favourable than those available to the recipient in the market (*Canada-Aircraft*, WT/DS70/AB/R, para. 157; later quoted in *Lead Bismuth*, WT/DS138/AB/R, at para. 67).

The ‘benefit’ need not be a ‘competitive benefit’, meaning that it is not necessary that as a result of the subsidy the recipient has their cost of production lowered.⁹ In other words, the ‘benefit’ must be identified in a subject, not in the object (that is, the goods). The ‘recipient’ of a benefit might be the company itself or its shareholders.¹⁰

In order to be actionable, a subsidy must be found to be ‘specific’ in accordance with the provisions of Article 2 and cause adverse effects (that is, injury to the domestic industry of another Member; nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994; or serious prejudice to the interests of another Member¹¹). Subsidies contingent upon export performance (‘export subsidies’) and subsidies contingent upon the use of domestic over imported goods (‘import substitution subsidies’) are regarded as ‘prohibited subsidies’ (Article 3 ASCM) and are automatically deemed to be ‘specific’.¹²

The ASCM only covers subsidies which might have an impact on the international trade of goods, with the exception of agricultural goods. Subsidies in the field of agricultural goods are governed by the provisions of the Agreement on Agriculture. Subsidies in the field of services are subject to the discipline of Article XV GATS, which is quite unspecific in nature (it does not define the concept of subsidy) and does not establish any legal remedy.

3. Analysis of two salient measures: export credit support and the automobile industry

3.1 Export credit support

Export credit enables a buyer (importer) to defer payment for the goods to the seller (exporter) or to a financial institution. This goal can be achieved in different ways: the exporter can provide the credit themselves; the exporter can provide the credit by means of an agreement with a financial institution; or the importer can obtain a loan from a financial institution. The financial institution involved in this credit can be an Export Credit Agency (ECA), which is a government-sponsored agency that promotes exports by facilitating export credit, either to the exporter or to the importer. The involvement of an ECA in export credit is termed either ‘official financing support’ (that is, when the credit is directly provided by the ECA to the buyer) or ‘pure cover’ (that is, when the credit is provided by a private financial institution and the ECA simply offers insurance or guarantees that facilitate the provision of credit). An ECA may also offer interest rate support for export credits.

Export credit is a relevant cost component in any operation of international trade. Therefore, government intervention that affects this cost can distort trade – as the WTO Panel in *Canada-Aircraft* observed.¹³ Export credit support can satisfy the criteria of a subsidy, as defined by the ASCM, when:

- It is a *financial contribution* by the government. This can take several forms: it can be provided by either a public body (which includes state-owned agencies or corporations) or a private body which is entrusted or directed to carry out the financial contribution. There are doubts as to whether export credit provided by international institutions would meet this criterion, although it seems most likely that the answer is ‘no’.¹⁴
- It confers a *benefit*. The recipient of the credit (and thus the financial contribution) can be the importer but there is nevertheless a passing-on of the benefit to the exporter, ‘as it lowers the cost of the product to their purchasers and thus makes their product more attractive relative to competing products’.¹⁵ As we have explained above, there is a benefit when the conditions offered to the exporter are more favourable than they would have been in the market without government intervention (either in the form of official financing support or pure cover), even when no cost to the government results from the financing operation.¹⁶ This is an important point because some government sponsored ECAs are mandated to be self-sustaining, that is, in the long term they need to cover their costs with the income they obtain from offering their services (that is, in the form of interests, insurance premiums or guarantee fees). Therefore, the fact that the ECA is self-sustaining is not relevant when the recipient is found to be receiving terms more favourable to them than those offered by the market. This is consistent with the ASCM provisions but it conflicts with the economic arguments that justify the establishment of ECAs.

ECAs are a useful instrument to address different market failures in export financing. In some circumstances, governments may have better risk information than private financial institutions and therefore they may be in a better position to assess the costs of risk. In other cases, the amounts involved in a transaction might be too high for a private institution, even though the operation could be commercially sound. ECAs can also foster trade when there is a financial crisis and private institutions cut trade financing out of systemic fear (‘herd behaviour’), as is the case in the current financial and economic crisis. However, if we establish that market conditions are the benchmark for deciding if there is a ‘benefit’ then the operations of an ECA that try to address these failures will be deemed to constitute a ‘benefit’ because they provide financing or cover for an operation that would otherwise not have taken place in the market under those terms or not at all (that is, because private institutions might have worse risk information or the amounts involved could be too high for them or there is a systemic fear). If the market is the only benchmark, we will be defenceless against market failures since the realisation that the economic fundamentals justifying the establishment of an ECA are in play would indicate that there is a deviation from market conditions – even when that deviation is justified precisely because the market is failing.¹⁷ In fact, the AB has recognised that private prices might not be an adequate benchmark, but that only happened in cases where government intervention distorted prices.¹⁸

Once the ‘benefit’ element is established, export credit support will most likely fall in the category of ‘prohibited subsidies’ because it is *de jure* contingent upon export performance. That is so because the credit is for exports and thus it is granted for the sale of goods for export.¹⁹ Nevertheless, note 5 to the ASCM provides that ‘Measures referred to in Annex I as not constituting export subsidies shall not be prohibited under this or any other provision of this Agreement’. Annex I of the ASCM contains an ‘illustrative list of export subsidies’. Therefore, the items contained in this list are, in principle, prohibited subsidies. Items (j) and (k) in Annex I of the ASCM are relevant for our discussion on export credit support. They provide as follows:

- (j) The provision by governments (or special institutions controlled by governments) of export credit guarantee or insurance programmes, of insurance or guarantee programmes against increases in the

cost of exported products or of exchange risk programmes, at premium rates which are inadequate to cover the long-term operating costs and losses of the programmes.

(k) The grant by governments (or special institutions controlled by and/or acting under the authority of governments) of export credits at rates below those which they actually have to pay for the funds so employed (or would have to pay if they borrowed on international capital markets in order to obtain funds of the same maturity and other credit terms and denominated in the same currency as the export credit), or the payment by them of all or part of the costs incurred by exporters or financial institutions in obtaining credits, in so far as they are used to secure a material advantage in the field of export credit terms.

Provided, however, that if a Member is a party to an international undertaking on official export credits to which at least twelve original Members to this Agreement are parties as of 1 January 1979 (or a successor undertaking which has been adopted by those original Members), or if in practice a Member applies the interest rates provisions of the relevant undertaking, an export credit practice which is in conformity with those provisions shall not be considered an export subsidy prohibited by this Agreement (Annex I, ASCM).

The only explicit exclusion from the category of ‘prohibited subsidies’ that we can find in these two items is contained in the second paragraph of item (k). This paragraph establishes an exception by (an indirect) reference to the ‘Arrangement on Guidelines for Officially Supported Export Credits’ (OECD Arrangement).²⁰ This arrangement is not an international treaty, nor even an OECD act, but a so-called ‘gentlemen’s agreement’ that is not legally binding and which can be modified by the Participants without having to follow the OECD decision-making procedures. Interestingly, when a country provides official support against the rules that it establishes, the solution provided in this Arrangement is to allow other participants to provide ‘matching’ credit support.

Since the paragraph makes reference to the original OECD Arrangement ‘or a successor undertaking’, the Panel in *Brazil-Aircraft* held that ‘the relevant successor undertaking is the *most recent* successor undertaking which has been adopted... prior to the time that the second paragraph is considered’.²¹ This raises an interesting issue, since not all WTO Members are parties to the OECD Arrangement. This means that a subset of the WTO membership can in fact modify the content of item (k) in Annex I of the ASCM, a fact that Brazil contended rendered the result of the Panel ‘manifestly absurd or unreasonable’. It argued instead that the relevant version of the Arrangement should be the 1992 version (the version in force at the time the ASCM was agreed). However, the Panel did not accept that its interpretation led to ‘manifestly absurd or unreasonable’ results since such results could be explained, for example, if the Parties considered ‘that the Participants [of the OECD Arrangement] at the time, had greater expertise in the area of officially supported export credits. Similarly, they could have considered that it was inappropriate to “freeze” the scope of the safe haven in the light of the fact that the *OECD Arrangement* was [and still is] in a process of evolution’.²²

The ‘delegation’ to the OECD Arrangement in item (k) of Annex I is quite limited in scope: it refers only to ‘the interest rates provisions of the relevant undertaking’. Thus, a country that provides export credit support applying interest rates in line with those provided for in the OECD Arrangement will not be deemed to offer prohibited subsidies under the ASCM.²³ As the Panel held in *Canada-Aircraft*, ‘the safe haven in the second paragraph of item (k) at present is potentially available *only* to export credit practices in the form of direct credits/financing, refinancing, and interest rate support at fixed interest rates with repayment terms of two years or more’.²⁴ ‘Pure cover’ operations fall outside the actual scope of the ‘safe haven’ provided by the OECD Arrangement because they are not subject to the minimum interest rate provisions (the Commercial Interest Reference Rate or CIRR) but only to disciplines on minimum premiums and repayment requirements.²⁵ For the pure cover to benefit from the safe haven, the OECD Arrangement should set a minimum interest rate for the export credits covered. Further, although only

measures that apply the interest rate provisions of the OECD Arrangement qualify for this safe haven provision, the credit terms must also comply with the rest of the OECD requirements (such as repayment requirements and minimum premiums) and not just the interest rate provisions.²⁶

Of particular relevance is the possibility that a credit, which is in conformity with the OECD Arrangement due to the application of the ‘matching’ remedy, would qualify as an exclusion from a prohibited subsidy under the ASCM. The Panel in *Canada-Aircraft* answered this question in the negative, arguing that ‘matching’ is a derogation of the Arrangement rules and besides, it would put WTO Members which are not Participants to the OECD Arrangement at a disadvantage.²⁷

It is a controversial issue whether the scope of footnote 5 ASCM would allow measures of export finance support that do not fully meet the requirements of items (j) and (k) of the Illustrative List in Annex I (implicit exclusions) to be excluded from the definition of ‘prohibited export subsidies’. For example, a country could provide export credit guarantee at premium rates which are *adequate* to cover the long-term operating costs and losses of the programs. Since item (j) prohibits export subsidies credit guarantees at premium rates which are *inadequate* to cover long-term operating costs and losses then *a contrario* it follows that the measure will not qualify as a prohibited export subsidy when the premium rates are adequate. Note that this interpretation can result in the general provision of Article 3.1.a) ASCM being overridden or corrected since (as we have already explained) what is relevant for the ‘benefit’ component in the concept of subsidy (as construed by the AB), is not that the program has no cost to the government but the fact that the recipient is offered conditions that are not available to them in the market. An ECA program can offer better terms than the market and still be able to cover its long-term operating costs and losses. Thus, an *a contrario* reading of items (j) and (k) would entail a gyration towards the ‘cost to the government’ standard.²⁸ Although the AB so far has not explicitly ruled whether an *a contrario* interpretation of the items of the Illustrative List in Annex I is permissible, the Panels have rejected it in two cases and the arguments supporting this finding seem solid.²⁹ These are:

- This interpretation does not render items (j) and (k) ineffective, since it is possible to demonstrate that a measure falls within the scope of those items without being required to demonstrate that Articles 1 and 3 are satisfied.
- This interpretation does not result in a disadvantage to developing nations, rather it favours them because an *a contrario* interpretation would systematically allow developed countries to offer export credit terms more favourable than those offered by developing countries.
- This interpretation allows a common set of rules in respect of export credit practices.

Besides the exclusion deriving from footnote 5 to ASCM, it should be noted that some developing nations (those referred to in Article 27.2 ASCM) benefit from the exclusion of the provisions in Article 3.1.a) ASCM³⁰ (prohibited export subsidies). Therefore, those countries can provide export credit support without risking a challenge before the WTO on the grounds that it constitutes a prohibited export subsidy. In fact, the WTO promotes export finance support by international organisations in favour of developing nations’ exports.³¹ Nevertheless, subsidies granted by developing countries can still be challenged as ‘actionable subsidies’³² and other countries can impose countervailing duties (CVD) against goods from developing countries that benefit from such credit support.

3.2 The automobile industry

The automobile industry has been heavily hit worldwide by the economic downturn. Automobile sales in the US and European markets were falling by 18 and 19 per cent respectively by the end of 2008 to the beginning of 2009.³³ Due in good part to government incentives, sales have since recovered and even rebounded in some markets from 2008 figures but there are still worries that this recovery might be heavily dependent on such incentives and therefore, there are doubts as to its sustainability.³⁴ The situation has been especially dire for the ‘Big Three’ US automakers, in particular GM (currently in

bankruptcy proceedings, despite massive infusions of public funds) and Chrysler. These are companies 'too big to fail', since a 50 per cent reduction in their US operations could lead to a loss of 2.5 million jobs in direct, indirect and spinoff employment in 2009.³⁵ To head-off this situation, governments have adopted a mix of measures that require an analysis from the ASCM provisions perspective.

Nationalisation. One of the possible actions that a government can take in order to maintain the business of troubled car makers is the partial or full nationalisation of the company. Full nationalisation would be a measure outside the scope of the ASCM since (as discussed above) the concept of 'benefit', as construed by the AB, requires that there be a 'recipient'. In this case, the recipient would be the State itself that owns the company.

From the perspective of the ASCM it is interesting to note, however, that when the State privatises a company the resources injected to improve it during the time in which it was under public control will not be deemed a subsidy in contravention of WTO law provided that the privatisation is made at arm's length and for fair market value.³⁶ That is so because the term 'benefit' implies that there must be a recipient³⁷ who receives a 'financial contribution' on terms more favourable than those available to them in the market.³⁸ When privatisation has been made at 'fair market value' there is no benefit bestowed on the privatised company and, therefore, no subsidy because the sale occurred under market conditions.³⁹

On the other hand, we feel that a partial nationalisation (that is, if the State were to acquire a stake in the company) would only avoid being considered a subsidy if it were made under market conditions. That is so because if the State were to inject more capital than the market value of the shares received in compensation, the difference could clearly be regarded as a subsidy (that is, a financial contribution that confers a benefit to the company) since the recipient would be receiving a 'financial contribution' on terms more favourable than those available to them in the market. Since the very object of a partial nationalisation would be to provide resources in amounts or on terms which the market fails to provide, partial nationalisation would, in all likelihood, constitute a subsidy. The result would be the same if the 'benefit' were conferred by a private body under the direction of the government.⁴⁰

Credit support. One of the measures most widely used by governments to assist car makers has been the offer of credit. The car industry has experienced a simultaneous collapse in sales and a tightening of credit conditions, while many of their costs cannot be reduced in such a short time span. This has resulted in a number of companies needing financial support to continue their operations under such adverse conditions or else face a shutdown with dire consequences.

As we have explained in the section devoted to export credit support, the provision of credit under terms which are more favourable than those available to the recipient in the market is deemed a subsidy. However, contrary to export credit support, this is not a 'prohibited subsidy' because it is not contingent upon either export performance or the use of domestic over imported goods. Nevertheless, it can still be regarded as an actionable subsidy, provided that the requisite of specificity is fulfilled. This requisite will be easy to verify when the authority granting the credit 'explicitly limits access to a subsidy to certain enterprises' or when it is possible to show the 'use of a subsidy programme by a limited number of certain enterprises'.⁴

Even when the financial support is not provided in the form of an injection of funds, it should be noted that a mere change in the conditions of a financial agreement (such as an extension of debt maturity; an interest reduction or a swap of debt for equity), even without supplemental resources being granted to the debtor, will constitute a subsidy if the change in conditions constitutes an improvement over the terms and conditions available to the debtor in the market.⁴²

In some instances, public loans to car companies have been subject to a variety of requirements and conditions that could make it more difficult to ascertain to what extent credit is offered on better terms than those available in the market. For example, the loan can be protected with super seniority above

all other debt; it can be made conditional upon the company accepting a cap in executive compensation or it can be made conditional upon the development of fuel efficient and low carbon emitting cars. All these factors could complicate the determination of the amount of the 'benefit' conferred through the loan but, nevertheless, would not affect the existence of a subsidy, provided that the credit would not have been available to the recipient in the market. In particular, it should be borne in mind that the provisions in Article 8 ASCM were phased out in 1999 and have ceased to apply since 1 January 2000. The significance of this Article was that it deemed as 'non-actionable' those subsidies which consist in 'assistance to promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which result in greater constraints and financial burden on firms'.⁴³

In the most protectionist fashion, the French President Nicolas Sarkozy announced credit lines to the automobile industry conditional on the manufacturers maintaining the production in France and purchasing a certain volume of parts from French suppliers. Those terms caused well founded outrage in eastern European countries, which feared that French manufacturers might decide to close factories there and keep the French factories working instead in order to comply with the conditions imposed on the credits. In the end, the French authorities decided not to implement those measures that would contravene not just WTO law but also European Community law in relation to State Aid (that is, Article 87 EC Treaty).⁴⁴

Cash for clunkers. Incentives to the consumer are an alternative way to improve the lot of the automobile industry. Many developed countries have now enacted programs that award direct subsidies and/or tax incentives for the buyers of cars. Most of the time, these incentives are conditional on a number of requisites, for example, the buyer might be required to trade-in their previous car that must have a minimum age; the new car must comply with strict fuel-efficiency standards or with strict carbon emissions limits; there might be a maximum value threshold for the new car to qualify for the program, etc.

It is important to stress that the incentive is conferred on the consumer, not on the manufacturer. These programs allow the consumer to choose which manufacturer better satisfies their needs (apart from some possible requirements based on public interest regarding emissions or fuel efficiency) and therefore they are neutral regarding the whole industry, both domestic and international. From the point of view of the WTO subsidies law, it is also relevant that no difference be made between domestic and imported cars and this seems to be the case with the programs now in place. Provided that these requisites are met, 'cash for clunkers' programs constitute a powerful aid that does not conflict with WTO law. In fact, the relative neutrality of the measure has made it a contested remedy for companies in the most difficult situations.⁴⁵

Is it likely that a case be brought to the WTO? We have argued that some measures adopted to confront the difficulties of the automobile industry could be regarded as actionable subsidies under the ASCM. Nevertheless, the Dispute Settlement Body (DSB) cannot decide in a case unless a complaint is brought to it by a Member State.

As highlighted by Brunel and Hufbauer, even though it is difficult to negate the existence of a subsidy in light of WTO rules, it is unlikely that a case will be brought before the DSB.⁴⁶ First, there is the difficulty of providing evidence regarding the adverse effects derived from the contested measure. Although serious prejudice under Article 6.3.a) ASCM covers situations where 'the effect of the subsidy is to displace or impede the imports of a like product of another Member into the market of the subsidising Member', it is important to note that the evidence of prejudice would most likely entail providing data for several years showing that car imports have been affected as a result of the provisions adopted. A case could be made alleging 'a threat of serious prejudice', since footnote 13 to Article 5.c) ASCM provides that 'The term "serious prejudice to the interests of another Member" is used in this Agreement in the same sense as it is used in paragraph 1 of Article XVI of GATT 1994, and includes threat of serious

prejudice' (emphasis added). So far we do not have further guidance on the interpretation of the concept of 'threat of serious prejudice' because, in the only precedents in previous cases before the DSB where a claim of a 'threat' was made, the Panel found that an actual or effective prejudice had been made out and, therefore, there was no need to establish an additional 'threat of serious prejudice'.⁴⁷

Further, the likelihood that a case be brought to the DSB is reduced because many car-manufacturing countries have adopted measures that could be regarded as actionable subsidies. Although the fact that a country has provided an actionable subsidy does not preclude it legally from bringing a case against another country's subsidies, it is very unlikely that any country would risk doing so because it would be safe to assume that such action would trigger retaliation in the form of a counter-complaint brought by the defendant country.

The possibility of imposing CVD based in internal laws that mirror the ASCM provisions is much more likely from a technical point of view. At least in the US, the evidence required to pass the test of 'threat of serious prejudice' seems quite easy to obtain.⁴⁸ However, a CVD case has to be promoted by a representative share of the domestic industry and that is unlikely to happen in the case of the automobile industry because it is a highly concentrated business sector worldwide, which means that there are a small number of firms that operate in different countries. For obvious reasons, a company that is benefiting from actionable subsidies in one country will not seek the imposition of CVD in another country against imported cars that benefit from that same subsidy.

If it is unlikely that a case be brought to the WTO DSB and that CVD be imposed internally, the biggest risk is that the automobile industry could, in fact, fall outside the scope of WTO subsidies law, as was the case in the past with the shipbuilding industry, steel industry, aircraft industry or in agriculture. This development would reduce effective competition amongst manufacturers and manufacturing countries and thereby reduce the economic efficiency in the sector. This could result in the creation of isolated regional car markets instead of an integrated worldwide market.

4. The ASCM in the Doha Round

The ASCM has been subject to intense debate during the negotiations of the Doha Round. In this context, the US has led an ambitious movement to broaden the scope of the measures covered by the ASCM and thus restrict the ability of Members to grant subsidies. This train of events also explains that Article 8 ASCM, the provision on non-actionable subsidies that provided legitimate causes that might justify a subsidy, has been left to expire. Already in June 2007, US Trade Representative (USTR) Susan Schwab proposed new provisions that would result in the prohibition of five additional subsidies under WTO rules. She explained that:

It is time to take the next step in the development of stronger WTO rules that will rein in the use of industrial subsidies. In an increasingly global economy, foreign government subsidies provide an unfair competitive advantage. *The subsidies we want to prohibit maintain inefficient production capacity in industries* (emphasis added) ranging from steel to semiconductors. Stronger rules for these types of subsidies would address significant trade distorting practices of many of our trading partners that often lead to unfair trade.⁴⁹

The categories of subsidies that the US pressed to include in the 'prohibited subsidies' basket were:

- (a) the direct transfer of funds to cover operating losses sustained by an enterprise or industry;
- (b) forgiveness of debt, *i.e.*, forgiveness of government-held loans or other instruments of indebtedness, and grants to cover repayment of government-held loans or other instruments of indebtedness;
- (c) loans and other instruments of indebtedness provided directly to enterprises that are uncreditworthy;

(d) provision of equity capital where the investment decision is inconsistent with the usual investment practice (including for the provision of risk capital) of private investors in the territory of that Member; and

(e) other financing (*i.e.*, ‘royalty-based’ or ‘sales-contingent’ financing or other similar financing) to an enterprise or project that otherwise would be unlikely to receive such financing from commercial sources.⁵⁰

In the months following these statements, a financial and economic storm originating in the same country Ms Schwab represented has brought the world’s financial system to the brink of total collapse. While it is true that subsidies that ‘maintain inefficient production capacity’ should be under the discipline of WTO law, things tend to look different when those industries are located close to home, let’s say Detroit.⁵¹ When pain hits home it is easier to understand that some government intervention is necessary to smooth the transition period towards a new and efficient business model. However, it is very important that we manage to establish the international rules that govern that transition in a way which is fair and non-discriminatory. In previous crises (for example, the Asian crisis), the countries that suffered most were not given the privilege of a reconsideration of the rules, instead they were lectured on the virtues of unrestricted open markets.⁵²

Our discussion has shown that the subsidies regime currently in force can be improved. For example, regarding export credit support we have seen that ‘market conditions’, as construed by the Panels and the AB, are the only benchmark against which support credit can be measured in order to decide whether or not it confers a ‘benefit’. This approach is confirmed in the new language of the last draft of the ASCM circulated by the Chair, which adds a new footnote 2, with the following text:

A benefit is conferred when the terms of the financial contribution are more favourable than those otherwise commercially available to the recipient in the market. Where relevant, for the determination of the existence of a benefit Article 14.1 shall provide guidance for determining whether such more favourable terms exist.⁵³

In the case of export credit support this interpretation (that could become a rule if the draft is confirmed) is too narrow, since ECAs can fill a gap in circumstances where there is a market failure. The recent financial turmoil has made this point very clear because private lenders have almost vanished from international trade, at least for the time being. Therefore, it seems reasonable that a provision that allows some scope for public intervention in export credit support in circumstances of market failure should be introduced in the ASCM. The alternative to an explicit provision is an *ad hoc* political compromise whenever a situation arises that requires an especial treatment. This latter option represents a defeat for an international legal system.

The situation is somewhat different regarding some of the measures adopted to support the automobile industry. While some of them conform to WTO law (for example, cash for clunkers) others clearly do not (for example, partial privatisation; credit support). The fact that it is unlikely that a case be brought to the WTO is no consolation. As Ms Schwab would probably agree, the harm is done when inefficient industries are artificially sustained. In this case, as we have discussed, it seems clear that these subsidies fall within the scope of actionable subsidies in the ASCM. So here we have a new case of a defeat of the international legal system.

The trouble with the subsidies to the automobile industry is that in this case the problem is probably one of excess capacity⁵⁴ (as was the case with the shipbuilding industry for some time). Here, the reasonable remedy would be to let the less efficient producers fall and then have production capacity adjust to demand. When President Obama argues that the ‘goal is not to further burden an already struggling industry. It is to help America’s automakers prepare for the future’,⁵⁵ we should bear in mind that,

confronted with overcapacity, not all the industry will be able to survive and that the subsidies that are being granted now aim to alter the results that the market would have otherwise delivered.

Nevertheless, it would probably make sense to reinstate non-actionable subsidies, that is, to explicitly establish some purposes that legitimise government intervention in the economy, based in the economic theory on market failure. This has been a road long tested in the European Union's (EU) State Aid regime which is more restrictive than the WTO regime while, at the same time, it provides a generous list of detailed exceptions.⁵⁶ This should not be taken as a suggestion to imitate the European model at the WTO. The European model is based in an institutional framework that is not available at international level, where the European Commission has ample powers to decide whether or not an exception to the prohibition of State aid applies (see Article 88 EC Treaty). Nevertheless, there are some lessons to be learned from this experience. One is that there is room in a market economy for well-designed State aid. As the European Commission puts it:

State aid may be declared compatible with the Treaty provided it fulfils clearly defined **objectives of common interest** and does not distort intra-community competition and trade to an extent contrary to the common interest. *State aid measures can sometimes be effective tools for achieving objectives of common interest. They can correct market failures, thereby improving the functioning of markets and enhancing European competitiveness. They can also help promote e.g. social and regional cohesion, sustainable development and cultural diversity, irrespective of the correction of market failures* (emphases added).⁵⁷

While the first of the aims of compatible State aid (that is, the correction of market failures) may to some degree be achieved at the WTO level, the second (that is, the promotion of other common goals irrespective of market failures) is probably out of reach unless there is an institutional framework that can exert some discretionary powers to implement the rules. Therefore, the efforts should concentrate on trying to draft detailed and satisfactory rules that provide coverage to economically sound and efficient subsidies that aim to correct market failures.⁵⁸

The latest draft of the ASCM circulated by the Chair still does not address this issue. The modifications introduced are relatively few. For example, none of the US proposed new categories of 'prohibited subsidies' is included although there is one new category for the fisheries sector. There are new provisions that deal with the problem posed by regulated prices. In Article 2.1.(c), in order to determine whether a subsidy is specific, the fact that some firms within the country in question might be excluded from access to the goods or services at the regulated prices establishes specificity. Moreover, Article 14.1.(d) establishes specific rules for the calculation of the amount of the subsidy in respect to goods and services provided at regulated prices. In general, the modifications are probably more visible in Article 14.

The regulatory challenge to address the interaction between subsidies and market failures is not the only one that the ASCM faces today. The economic crisis has shown the importance of a vigorous regulation (and implementation⁵⁹) of subsidies law, while at the same time it has evidenced the limitations as well as the achievements of the WTO regime. The rescue of troubled financial institutions has thrown light on the fact that subsidies in the field of services still lack an international framework of rules. Efficient banks are being penalised while the inefficient ones receive government support that distorts competition in this highly integrated business sector. The critical recent events could offer a good opportunity to bring subsidies in the service sector under the effective discipline of the WTO. In doing so, it would be worth trying to establish a unique set of rules, both for subsidies that refer to goods and for subsidies that refer to services. Otherwise there could be significant problems due to the overlapping of rules.⁶⁰

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- Indonesia – Certain measures affecting the automobile industry (Indonesia-Autos), WT/DS54, WT/DS55, WT/DS59, WT/DS64.
- Canada – Measures affecting the export of civilian aircraft (Canada-Aircraft), WT/DS70.
- United States – Tax treatment of foreign sales corporations (US-FSC), WT/DS108.
- United States – Imposition of countervailing duties on certain hot-rolled lead and bismuth carbon steel products originating in the United Kingdom (US-Lead Bismuth), WT/DS138.
- United States – Countervailing measures concerning certain products from the European Communities (US-Certain Products), WT/DS212.
- United States – Final countervailing duty determination with respect to certain softwood lumber from Canada (US-Softwood lumber), WT/DS257.
- United States – Subsidies on upland cotton (US-Upland Cotton), WT/DS267.
- Korea – Measures affecting trade in commercial vessels (Korea-Commercial Vessels), WT/DS273.
- Japan – Countervailing duties on dynamic random access memories from Korea (Japan-DRAM), WT/DS336.

Endnotes

- 1 Changes have occurred at such a fast pace that, as discussed below, previous statements of policy are now coming back to haunt those who made them. Also, it has been necessary to adapt normal procedures in order to deliver quick decisions (see EC Commission: ‘State Aid Scoreboard- Spring 2009 update. Special edition on State Aid interventions in the current financial and economic crisis’, *COM (2009) 164*, Brussels, 08.04.2009, p. 27).
- 2 Gamberoni & Newfarmer 2009, p. 3.
- 3 WTO case law will be quoted by its short title throughout the text. The list of cases, with their full case titles and citations, is provided at the end of the paper.
- 4 Article 1 ASCM states: ‘For the purpose of this Agreement, a subsidy shall be deemed to exist if:
(a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as ‘government’), i.e. where:
(i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);
(ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);
(iii) a government provides goods or services other than general infrastructure, or purchases goods;
(iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments; or
(a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994; and
(b) a benefit is thereby conferred’.
- 5 AB Report *Brazil-Aircraft*, WT/DS46/AB/R, para. 157.
- 6 WTO AB Report *Canada-Aircraft*, WT/DS70/AB/R, para. 156: ‘Thus, subparagraphs (a) and (b) of Article 1.1 define a “subsidy” by reference, first, to the action of the granting authority and, second, to what was conferred on the recipient’.
- 7 AB Report *Brazil-Aircraft*, WT/DS46/AB/R, para. 148.
- 8 WTO AB Report *Canada-Aircraft*, WT/DS70/AB/R, adopted 2 August 1999, para. 154. Later quoted in AB Report *Lead Bismuth*, WT/DS138/AB/R, para. 55.
- 9 Diamond 2008. In *Canada-Aircraft*, the AB clearly distinguishes the concept of ‘benefit’ from the concept of ‘prejudice’ (AB Report, WT/DS70/AB/R, para. 159).
- 10 AB Report, *US-Certain products*, WT/DS212/AB/R, para. 113.
- 11 Article 5 ASCM. ‘Serious prejudice’ is defined in Article 6 ASCM.

- 12 The ASCM should be construed in light of Article XVI GATT (US-FSC, Report of the Panel, at 7.82, WT/DS108/R, 8 October 1999). Nevertheless, *General interpretative note to Annex 1A* states that ‘In the event of conflict between a provision of the General Agreement on Tariffs and Trade 1994 and a provision of another agreement in Annex 1A to the Agreement Establishing the World Trade Organization (referred to in the agreements in Annex 1A as the “WTO Agreement”), the provision of the other agreement shall prevail to the extent of the conflict’.
- 13 ‘Among the various forms of export subsidies, subsidised export credits arguably have the most immediate and thus greatest potential to distort trade flows’, Panel Report *Canada-Aircraft* (Article 21.5), WT/DS70/RW, para. 5.137.
- 14 As the Expert Group Meeting on Trade Financing stated: ‘The ASCM is in general drafted to address situations where a WTO Member is subsidizing the production or sale of its own goods, and it is not entirely clear whether or not the Agreement applies where the subsidizing entity is not within the territory of the Member whose goods are allegedly being subsidized. Leaving aside this legal uncertainty, many WTO Members appeared to be of the view that development aid provided by multilateral development institutions lay outside the scope of ASCM disciplines, or in any event that it would not be proper to take action under the Agreement in this context. To date, no Member has challenged multilateral development assistance as a subsidy in WTO dispute settlement proceedings’ (WT/GC/W/527, 16 March 2006, para. 21).
- 15 As the Panel in the *Brazil-Aircraft* stated: ‘We note that PROEX III payments are made in support of export credits extended to the *purchaser*, and not to the *producer*, of Brazilian regional aircraft. In our view, however, to the extent Canada can establish that PROEX III payments allow the purchasers of a product to obtain export credits on terms more favourable than those available to them in the market, this will, at a minimum, represent a *prima facie* case that the payments confer a benefit on the *producers* of that product as well, as it lowers the cost of the product to their purchasers and thus makes their product more attractive relative to competing products’ (Second recourse by Canada to Article 21.5 of the DSU, WT/DS46/RW2, footnote 42). A prominent case of pass-through of a benefit is *US-Softwood lumber*, see Gagne and Roch 2008, pp. 557-560.
- 16 AB Report *Canada-Aircraft* (WT/DS70/AB/R, para. 160).
- 17 This point is made by Coppens 2009, p. 84. The WTO seems to be somewhat aware of this problem. In the Note of the Secretariat on the Expert Group Meeting on Trade Financing this issue is briefly addressed, as follows: ‘it was felt that there was need for more conceptual work to define an economic benchmark which allowed risk to be properly priced in extreme situations, for example of a currency crisis. It was noted that this was difficult to do a priori, given the day-to-day uncertainty that prevailed at such times, and that it was difficult also to stipulate “market clearing” conditions that would allow commercially viable behaviour to be defined. It was noted also that even if such a benchmark could be found and agreed on, no existing institution had the mandate to determine when “exceptional circumstances” exist’ (WT/GC/W/527, 16 March 2006, para. 23). It is reasonable that in 2006, coming out from the Asian currency crisis, the ‘extreme situation’ envisaged had to do with ‘currency crisis’. The financial crisis that started in 2007 has been a case of systemic failure to ascertain risk, not just a currency crisis.
- 18 *US-Softwood Lumber*, WT/DS257/AB/R, para. 103. See an analysis of this case in Gagne & Roch 2008, pp. 547-572.
- 19 Export credit support for the sale of services is beyond the scope of this paper because it would not be under the discipline of the ASCM but of the GATS, as previously observed.
- 20 The last available consolidated version is from 16 February 2009 (TAP/PG(2009)6) at www.oecd.org. See Levit 2004.
- 21 *Brazil-Aircraft*, WT/DS46/RW2 (second recourse by Canada to Article 21.5 of the DSU), para. 5.81 and 5.83.
- 22 *Brazil-Aircraft*, WT/DS46/RW2 (second recourse by Canada to Article 21.5 of the DSU), para. 5.84-5.91, text quoted from para. 5.88. This topic is a matter of ongoing discussion at the Doha Round: ‘Views differ widely as to whether the second paragraph of item (k) should be amended such that any changes to the OECD Export Credit Arrangement would not automatically take effect for purposes of the SCM Agreement. At one end of the spectrum, some delegations consider that only amendments not objected to by any Member within a certain period should have legal effect under the second paragraph of item (k), while at the other end of the spectrum some delegations consider that Members should not have any basis on which effectively to veto decisions taken by Participants to the Arrangement’ (WTO Document *New draft consolidated chair texts of the AD and SCM Agreements*, TN/RL/W/236, of 19 December 2008, p. 74).
- 23 Relying in AB Report *US- FSC*, WT/DS108/AB/R, para. 93, and other WTO case law, Coppens (2009, pp. 107-108) argues that a subsidy included in the ‘safe haven’ of the second paragraph of item (k) Annex I could still be regarded as a subsidy under the ASCM and could be subject to CVD by an importing country, although it is less certain if it could also be regarded as an actionable subsidy.
- 24 *Canada-Aircraft* WT/DS70/RW (recourse by Brazil to Article 21.5 of the DSU), para. 5.106. The paragraph goes on to state: ‘In other words, any such practices involving floating interest rates, as well as official support for export credits with shorter maturity or in the forms of guarantees and insurance, because none are *subject to* the *Arrangement’s* “interest rates provisions”, most especially the CIRR but also the sector-specific minimum interest rates in the *Sector Understandings*, would not be eligible for the safe haven, as it simply would not be possible to judge their “conformity” with the relevant interest rate provisions of the *Arrangement*, all of which pertain exclusively to fixed rates’.
- 25 Coppens 2009, p. 99.

- 26 *Canada-Aircraft* WT/DS70/RW (recourse by Brazil to Article 21.5 of the DSU), para. 5.114: ‘Thus, we conclude that full conformity with the “interest rates provisions” – in respect of “export credit practices” subject to the CIRR – must be judged on the basis not only of full conformity with the CIRR but in addition full adherence to the other rules of the *Arrangement* that operate to support or reinforce the minimum interest rate rule by limiting the generosity of the terms of official financing support’.
- 27 *Canada-Aircraft* WT/DS70/RW (recourse by Brazil to Article 21.5 of the DSU), para. 5.121 and 5.134. See also *Brazil-Aircraft*, WT/DS46/RW, para. 5.114-5.115. The signatories to the OECD Arrangement have changed the wording of the ‘matching’ clause in order to configure it not as a derogation but as a measure ‘in conformity’ with the Arrangement. However, it is doubtful that this modification will change the determination of future panels in this regard. See Coppens 2009, pp. 103-104.
- 28 In the WTO Document *New draft consolidated chair texts of the AD and SCM Agreements*, TN/RL/W/236, of 19 December 2008, the new footnote 6 (that substitutes footnote 5 in force) makes it explicit that an *a contrario* interpretation of the Illustrative List in Annex I is not permitted.
- On the other hand, the *draft* reflects that there are discussions regarding the new language of items (j) and (k) of the Annex I: ‘Delegations disagree regarding whether the texts of item (j) and the first paragraph of item (k) should be amended to replace the cost-to-government benchmark with one based on benefit-to-recipient. Those favouring such changes consider that the current provisions work to the disadvantage of developing Members and are inconsistent with the Agreement’s general definition of “subsidy”. Other delegations, however, consider that such changes would increase costs for developing country borrowers, and would reduce predictability for export credit agencies’ (TN/RL/W/236 2008, p. 73).
- 29 *Brazil-Aircraft*, WT/DS46/RW, para. 635-641; *Korea-Commercial Vessels*, WT/DS273/R, para. 7.195-7.207. See Coppens 2009, pp. 91-93.
- 30 Article 27.1 ASCM provides that ‘Members recognize that subsidies may play an important role in economic development programmes of developing country Members’.
- 31 WT/GC/W/527, 16 March 2006, para. 1. As referred to by Auboin, ‘the Director-General of the WTO defined the role of the WTO in this area: encouraging liberalization of this type of financial services under the financial services agreement, being a regulator of export credit and guarantee subsidies under the ASCM, and serving as a forum to discuss WTO-compatible ways of providing support to developing countries’ (Auboin 2007, p. 2).
- 32 See Article 27.9, that limits the ‘adverse effects’ that the complainant can invoke. Developing countries also benefit from an increased *de minimis* rule in Article 27.12 ASCM.
- 33 In the US, overall auto sales dropped 18 per cent between 2007 and 2008, while in Europe sales dropped by 19 per cent in December 2008, year on year, with sales in relevant European countries dropping by as much as 50 per cent (Spain). See Brunel & Hufbauer 2009, pp. 1, 5. For Europe, see European Commission, ‘Responding to the crisis in the European automotive industry’, COM(200) 104 Final, Brussels, 25.02.2009, pp. 3-4, stating that in ‘the last quarter of 2008 new car registrations in Europe declined by an average of 20%’, while ‘In January 2009, the European passenger car market was 27% lower than a year before’.
- 34 ‘Sales by Volkswagen in Germany, where the government is offering buyers 2,500 Euros when they trade in a model that’s at least nine years old for scrapping, climbed 18 percent to 534,000 vehicles in the six months through June. The country’s market surged 26 percent in the first half, according to the Federal Motor Vehicle Office. European car-industry sales rose 2.4 percent in June, the first increase in 14 months, as customers took advantage of incentives across the region. German carmakers are unlikely to sustain sales growth into 2010 as trade-in subsidies will expire this year, the VDA industry association said July 2. Registrations in Germany may plunge to 2.6 million from as many as 3.7 million in 2009, said Rolf Dielenschneider, head of VW’s Seat division’ (www.bloomberg.com/apps/news?pid=newsarchive&sid=azpN5x4JPjul).
- See also www.bloomberg.com/apps/news?pid=newsarchive&sid=arbQkPT4QBfk, ‘a mix of credits, tax breaks and subsidies to get consumers to trade in old cars for newer, more fuel-efficient models, in France, Germany and Japan, among others, are stemming a plunge in demand’.
- 35 Brunel & Hufbauer 2009, p. 1, citing data from the *Center for Automobile Research*.
- 36 See the cases *US-Lead Bismuth*, WT/DS138, and *US-Certain Products*, WT/DS212. In *US-Certain Products*, the Panel found that: ‘Privatizations at arm’s-length and for fair market value *must* lead to the conclusion that the privatized producer paid for what he got and thus did not get any benefit or advantage from the prior financial contribution bestowed upon the state-owned producer. While Members may maintain a rebuttable presumption that the benefit from prior financial contributions (or subsidization) continues to accrue to the privatized producer, privatization at arm’s-length and for fair market value is sufficient to rebut such a presumption’ (WT/DS212/R, para. 7.82). Nevertheless, the AB concluded that a privatisation at arm’s-length and for fair market value merely establishes a rebuttable presumption that a benefit ceases to exist after such a privatisation (WT/DS212/AB/R, para. 127). The AB rejected the US contention that the privatised company (and not its shareholders) should be regarded as the recipient of the ‘benefit’ and thus the subsidy would not cease to exist after the privatisation.
- 37 WTO AB Report *Canada-Aircraft*, WT/DS70/AB/R, adopted 2 August 1999, para 154. Later quoted in AB Report *Lead Bismuth*, WT/DS138/AB/R, para. 55.

- 38 WTO AB Report *Canada-Aircraft*, WT/DS70/AB/R, para. 157. Later quoted in AB Report *Lead Bismuth*, WT/DS138/AB/R, para. 67. The ‘benefit’ does not necessarily entail a cost to the government (AB Report *Canada-Aircraft*, WT/DS70/AB/R, para. 155-156: ‘the reference to “benefit to the recipient” in Article 14 also implies that the word “benefit”, as used in Article 1.1, is concerned with the “benefit to the recipient” and not with the “cost to government”, as Canada contends’).
- 39 AB Report *Lead Bismuth*, WT/DS138/AB/R, para. 68. See an analysis of this WTO case in Diamond (2008, pp. 649-678) arguing that the AB resorts to a strict textual interpretation of the ASCM that does not take into full consideration its context, or its object and purpose, which are interpretation criteria under Article 31 of the Vienna Convention; and that, when considering the purpose of the ASCM, the economic implications of the facts under discussion have to be taken into account.
- 40 Article 1.1.a)iv) ASCM; WTO AB Report *Canada-Aircraft*, WT/DS70/AB/R, para. 160.
- 41 Article 2 ASCM.
- 42 See *Japan-DRAM*, WT/DS336/AB/R, para. 250-256.
- 43 The broad categories of non-actionable subsidies in Article 8 ASCM are: assistance for research activities; assistance to disadvantaged regions within the territory of a Member; and assistance to promote adaptation of existing facilities to new environmental requirements. Some developing countries, led by Venezuela and Cuba, promoted a re-instatement of non-actionable subsidies, especially for developing countries. Developed countries mostly resisted this attempt (ICTSD-IISD 2003, ‘Doha Round Briefing Series’, vol. 2, no. 7 of 13 (August), p. 3).
- 44 ‘State aids: the Commission obtains guarantees from the French government on the absence of protectionist measures in the French plan for aid to the automotive sector’, MEMO/09/90, Brussels, 28 February 2009. The closing remark on the Memo is nevertheless very telling: ‘The Commission will of course monitor closely the implementation of this plan’.
- 45 Brunel & Hufbauer 2009, p. 3, ‘The Big Three worry that the Bill would not help them because auto buyers would replace their American cars with foreign made ones’, citing Brody Mullens and Elisabeth Williamson 2009, ‘Cash for clunkers plan is considered’, *Wall Street Journal*, 30 January.
- 46 Brunel & Hufbauer 2009, pp. 7-8.
- 47 *US-Upland Cotton*, WT/DS267/R, para. 7.1479-7.1504; *Indonesia-Autos*, WT/DS54/R, para. 14.257.
- 48 Brunel & Hufbauer 2009, p. 9. As Diamond points out, building on the AB Report in *Japan-DRAM*, while in a case brought to the WTO the claimant must show that the subsidy has caused adverse effects, in a CVD investigation there is no need to trace the injury to the subsidy (provided the existence of a subsidy has been shown) but just to the subsidised (Diamond 2008, pp. 672-674).
- 49 United States Trade Representative (USTR): *US proposes strengthened subsidy rules to World Trade Organization* (4 June 2008). Previously available at www.ustr.gov (viewed 13 February 2009). This policy is reflected and articulated in *Subsidies Enforcement Annual Report to the Congress*, Joint Report of the Office of the USTR and the US Department of Commerce, February 2008, www.ustr.gov.
- 50 *Subsidies Enforcement Annual Report to the Congress* 2008, pp. 5-6.
- 51 In fact, the measures adopted to rescue the ‘Big Three’ would be deemed prohibited subsidies under items (a), (c) and (d), and even possibly (e), of the US proposal as reproduced above.
- 52 Stiglitz 2002.
- 53 WTO Document *New draft consolidated chair texts of the AD and SCM Agreements*, TN/RL/W/236, 19 December 2008.
- 54 As the European Commission has put it: ‘Recent falls in demand and production have made the situation worse and average overcapacity in Europe is estimated to be at least 20%. Globally, vehicle production capacity is currently at ca. 94 million per year at a time when demand for 2009 is estimated at ca. 55 million’...Nevertheless, the document also signals that, ‘However, the **long term global outlook** for the automotive industry is promising’ (European Commission *COM(2009) 104 Final*, 25.02.2009, p. 4). Gamberoni and Newfarmer argue that ‘To the extent that the industry is laden with excess capacity, these subsidies impede exit and delay adjustment’ (Gamberoni & Newfarmer 2009, p. 2).
- 55 Thomas et al. 2009. The same philosophy is behind the European Commission’s stance on this matter, stressing the need to increase investments in R&D to speed up the development and production of ‘green’ cars (European Commission *COM(2009) 104 Final*, 25.02.2009, p. 6).
- 56 Some examples are aid for climate change and other environmental protection; for research, development and innovation; regional aid; for the rescue and restructuring of firms in difficulty; for small and medium-sized enterprises; employment aid; training aid; risk capital measures; aid elements in the sale of land and buildings by public authorities; services of general economic interest. See *Vademécum: Community law on State Aid*, Brussels, 30 September 2008.
- 57 See *State Aid Action Plan. Less and better targeted State Aid: a roadmap for State Aid reform 2005-2009*, European Commission *COM (2005) 107 Final*, Brussels, 07.06.2005, para. 10. The document previously highlighted that ‘**Competition policy** rests upon the idea that a market-based economy provides the best guarantee for raising living conditions in the EU to the benefit of citizens, one of the primary objectives of the EU Treaty’ (para. 6) and ‘State aid control comes from the need to **maintain a level playing field** for all undertakings active in the Single European Market, no matter in which Member State they are established’ (para. 7).

- 58 In some cases, as with export subsidies, the key could be not in the rule prohibiting them, but in the remedies applicable in case of breach. See for example Green and Trebilcock 2007. The authors argue that, in order to allow efficient uses of export subsidies, there should be a strict rule prohibiting them – as it is already the case – but the remedy should be calculated on the basis of the harm caused, not on the basis of the subsidy itself, in what they call ‘liability rule’; they also criticise the prospective nature of remedies, that allow the adoption of short-term subsidies without fear of formal penalties.
- 59 In the EU State aid regime, in some cases prohibited subsidies must be reimbursed (‘Where negative decisions are taken in cases of unlawful aid, the Commission shall decide that the Member State concerned shall take all necessary measures to recover the aid from the beneficiary’, Article 14 Council Regulation (EC) 659/1999, 22 March 1999, laying down detailed rules for the application of Article 93 of the EC Treaty, OJ L 83, 27.03.1999, p. 1). See Linares 2001, pp. 45-54.
- 60 Luja 2005, p. 113.

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SUPPLY CHAIN SECURITY PROGRAMS AND BORDER ADMINISTRATION

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Abstract

Supply chain security programs raise several legal issues. This paper outlines some of those questions as applied to the border between Canada and the United States (US). As modern customs administrations adapt to take increasing account of security needs, international cooperation will be crucial, along with consultation with the business sector.

1. Introduction

After the attacks of September 11, 2001, Canada and the United States (US) signed a 'Smart Border Declaration' designed to enhance cooperation among their border officials on security issues while facilitating legitimate trade.² Given the commercial importance of this border, several commentators have suggested that the best way to address security concerns is to develop a common perimeter around either Canada and the US or the whole of NAFTA,³ with elimination of internal trade barriers and a common external regime presented to the outside.⁴ In my view, such a security perimeter would be too complicated and unworkable.⁵ Instead, it is suggested that Canada and the US should continue in the direction set in the Smart Border initiative and pursue administrative measures such as the programs discussed below to support both security and trade.

This paper describes the countries' two main supply chain security programs and comments on the international legal framework and selected issues in domestic law. As this is a land border, the paper does not address maritime shipping container security, although Canada and the United States have entered into an arrangement on container security.

Supply chain security raises issues that highlight the need for cooperation as modern border administration adapts to deal with the evolving commercial context and current threats to security.

2. PIP and C-TPAT

Partners in Protection (PIP) is the supply chain security program of the Canada Border Services Agency (CBSA). It was first developed in 1995 and has been modified since that time, most recently in June 2008.⁶ PIP status is available for importers, exporters, carriers (highway, rail, marine or air), customs brokers, couriers, warehouse operators, freight forwarders and shipping agents. PIP members must own or operate facilities in Canada. US-based highway carriers do not need Canadian facilities if they are also members in FAST, the Canada-US/US-Mexico program for 'Free and Secure Trade' that offers priority clearances into each country. PIP applicants are asked to provide information on physical security and documentation of cargo, personnel, security training, and the selection of business partners along the supply chain from point of origin to destination. PIP members enter into a memorandum of understanding with the CBSA. According to the model memorandum available on the website, the PIP program is intended to assist CBSA 'to enhance border security, combat organised crime and terrorism,

detect and prevent contraband smuggling and increase awareness' of security issues (paragraph 1.1). Also according to the model memorandum, CBSA will consider PIP members for front-of-the-line inspections and priority in emergency situations (paragraph 3.1). The model memorandum further states that it represents an administrative understanding that is 'not intended to be legally binding or enforceable before the courts' (paragraph 2.3).

The Customs-Trade Partnership Against Terrorism (C-TPAT) is the supply chain security program of US Customs and Border Protection (CBP). It is available for importers, carriers (highway, rail, sea or air), foreign manufacturers, customs brokers, port operators, freight consolidators and third party logistics providers.⁷ The territorial criteria for membership are wider than the criteria for membership in the Canadian program. To be eligible for C-TPAT, importers must have a business office staffed in the US or Canada. Highway and rail carriers must have a business office staffed in the US, Canada or Mexico.⁸ Foreign manufacturers must be incorporated in Canada or Mexico. Customs brokers and members in most of the other categories must have a business office in the US. Like PIP, C-TPAT members are assessed for physical security and documentation, personnel, security awareness and training, and security measures in the choice of business partners, including whether a business partner is certified in the supply chain security program of a foreign customs administration. Since many of the employees of C-TPAT members are outside the US, the criteria for several of the listed membership categories state that background checks are to be consistent with laws applying in the place of employment, including foreign laws. C-TPAT members have access to programs such as FAST and the possibility of fewer inspections or at least front-of-the-line status if they are directed to inspection.

On 28 June 2008, Canada and the US signed a mutual recognition arrangement acknowledging that the two countries' supply chain security programs use similar standards and site validations.⁹ The arrangement falls short of automatic mutual recognition of status for members, however. In a joint report in February 2008, the US Chamber of Commerce and the Canadian Chamber of Commerce argued for full recognition of status, so that companies would only need to be certified in one program, not both.¹⁰ In a follow-up report, the two Chambers of Commerce noted that while the two programs are now more closely aligned, membership status is still not mutually recognised.¹¹

3. GATT and NAFTA

At the land border between Canada and the US, the FAST program provides designated lanes for clearances of imported goods. For shipments to benefit from this treatment, the importers, carriers and drivers must all be approved under the country's supply chain security programs. Membership in a security program could produce some commercial benefit on its own. FAST approval offers the additional advantage of separate lanes for speedy, predictable clearances.

The major potential questions over compliance with World Trade Organization (WTO) and NAFTA obligations have to do with the requirement of facilities or offices in the country of import to qualify for membership.

The main General Agreement on Tariffs and Trade (GATT) provision to consider is Article I, providing for most-favoured-nation (MFN) treatment. Assume, first, a shipment of tomatoes from the US imported into Canada by an importer resident in Canada, using the FAST lane since the importer and carrier are members of PIP and the driver is approved under FAST. Compare this shipment to an importation of tomatoes from Mexico that undergoes a lengthy and more expensive clearance process into Canada because the importer of record does not have facilities in Canada and the FAST lane is therefore not available.¹² In the words of Article I, the clearance would be a formality in connection with importation, and the question is whether the US tomatoes have received an advantage, favour or privilege not accorded to the Mexican tomatoes. The answer is debatable, since the importer of the Mexican tomatoes

presumably is not prevented from setting up an office in Canada to qualify for PIP. The requirement for local facilities could be questioned, however. Is there otherwise a commercial reason for a trader to have offices in every country with which it does business?

Within NAFTA, there could be further questions over both investment and services. The definition of investment in NAFTA is very wide, including certain loans and profit-sharing arrangements¹³ that might not result in owning or operating an office in Canada. If one investor qualifies for the FAST lane while another does not, is there a breach of MFN treatment, contrary to NAFTA Article 1103? A possible but less likely argument is that the difference amounts to a prohibited performance requirement, imposing a preference for local office rental services, contrary to Article 1106(1)(c). A stronger argument over the prohibition on imposing performance requirements on investment relates to the preference for domestic service providers such as customs brokers, couriers, freight forwarders, consolidators and other third parties, who may need local offices to be acceptable business partners. Chapter 11 of NAFTA is not simply about establishing or selling a foreign investment, but applies to management, conduct and operation of the investment as well.

Chapter 12 of NAFTA on services has wide coverage and contains both MFN and national treatment obligations.¹⁴ It relates to measures respecting presence of a service provider in the territory (Article 1201(d)) and states that no Party may require residence or a local office as a condition for the cross-border provision of a service (Article 1205). Several potential arguments – particularly the national treatment obligation in Article 1202 – are available for customs brokers, freight forwarders and various service providers based in the NAFTA territory, unless reservations apply. Canada has reservations from Articles 1202 and 1205 for customs brokers, duty free shops, air transportation, truck transportation and water transportation.¹⁵

It is not clear that breaches of GATT or NAFTA are present in the supply chain security programs, but if any are found, would the national security exemption provide justification? The exemption, in nearly identical wording, is in GATT Article XXI and NAFTA Article 2102. It permits a Party to take any action that ‘it considers necessary for the protection of its essential security interests... taken in time of war or other emergency in international relations’. This is quite wide and the self-judging language gives a Party obvious leeway in the interpretation of the exemption, although it may be argued that the deference to Party views only relates to the necessity of the action and not to whether an ‘emergency in international relations’ is present. Countries may hesitate to devalue this exemption by using it as a way out of their trade obligations on a permanent basis.¹⁶ Canada, for example, might not want to argue that all of its PIP goals, including the prevention of organised crime and border smuggling, have become emergencies. If the GATT or NAFTA exemption is not suitable, countries could still turn to general public international law for some defences to state responsibility,¹⁷ although these are not likely to be more generous than the GATT/NAFTA exemption.

Public international law raises the further issue of extraterritoriality. By their nature, supply chain security programs relate to acts, property and inspections outside the territory of the importing state. By establishing these programs, are states attempting to extend their regulatory or enforcement jurisdiction too far? The protective principle is an accepted basis for extraterritorial regulatory jurisdiction for vital interests such as security, protection of the currency and immigration.¹⁸ It could be a sufficient foundation for matters relating to border security, but might not stretch so far as to include the control of ordinary criminal activity. Since the programs are voluntary, applicants for membership consent to site validations as part of enforcement. There may be a question whether such extraterritorial inspections are intrusions into the territory¹⁹ and thus require consent from the country where they are to take place, although they are not exactly analogous to enforcement of legal requirements imposed on imports. The mutual assistance treaty of 1985 between Canada and the US could have some relevance, but it does not provide for extraterritorial inspections by foreign officials operating on their own, independently of domestic officials.²⁰ As a practical matter between most trading nations, consent would be forthcoming,

since a country would not want to see its traders disqualified from membership in supply chain security programs. As security concerns become a permanent feature of modern customs administrations, they will likely produce a tendency for some extraterritoriality and a corresponding need for cooperation.

3. Domestic law (Canada)

The main area of possible friction between supply chain security programs and domestic law relates to privacy and human rights issues in employment law. If the security program is drafted on the basis of the domestic law of the importing country, it could push employers to ask for and then report information they cannot legally demand or provide in the country of employment.²¹ The reporting of personal data raises particular concerns if the information will be held outside the territory.²²

In addition, if employment opportunities are conditional on distinctions that are not permissible in the country of employment, employers risk violating domestic human rights law. In a different context, Canadian firms have experienced this issue in the application of certain US export control regulations that restrict access to information by persons holding a citizenship other than US or Canadian, as national origin is a prohibited ground of discrimination in Canadian human rights law.²³ Deference to the law of the place of employment is a way to avoid these problems, but such deference may conflict with strong competing public policies in the other involved country.

The 2009 report by the US Chamber of Commerce and the Canadian Chamber of Commerce noted that participating companies could be ejected from a supply chain security program for even just one security incident. The report recommends that such expulsions be limited to situations where either the company or the driver was in some way complicit.²⁴ For security incidents relating to documents and customs formalities, the recommendation would be in line with GATT Article VIII which limits penalties for infractions committed without fraudulent intent or gross negligence. GATT Article X:3(b) requires that Members maintain a system of independent judicial or tribunal review of administrative actions relating to customs. The Federal Court of Canada has already ruled in favour of one driver who had his FAST card and Commercial Driver card confiscated for failure to declare a small bottle of scotch whisky, which would not have been dutiable had it been declared. The confiscations were overruled and the matter returned to the Minister for reconsideration. A three-year ban on reapplication by the driver was also overturned, since the relevant regulation did not allow for a suspension beyond 90 days.²⁵ Similar cases can be anticipated in other countries, as supply chain security programs are accepted as a usual feature of customs administration.

4. Conclusions

International harmonisation efforts are very demanding. One response to enhanced security concerns across the Canada-US border has been to argue for a common security perimeter that would involve significant harmonisation of domestic standards and a level of integration that, I suggest, is unrealistic. A better alternative is to focus on techniques of border administration, which will still present challenges to be resolved in light of differences in domestic policies. On security issues, it cannot be expected that it will be easy for countries to share risk management and enforcement efforts. As between Canada and the US, it has not been possible to achieve mutual recognition of membership status in supply chain security programs, a result that is understandable given the high volume of trade between the two countries. As the World Customs Organization has noted, it will take time to achieve a global system for mutual recognition of Authorised Economic Operator status in such programs.²⁶ Even if recognition is unavailable, using similar techniques and asking for similar information can make the procedures of international trade easier for commerce.

Since supply chain security programs are voluntary, businesses must be convinced that they produce sufficient benefits to justify the cost of qualifying for membership. Companies that still experience a high rate of inspections and little reduction in wait times may decide that the expense is too high. The US Chamber of Commerce and Canadian Chamber of Commerce note that a major limit on the current usefulness of PIP and C-TPAT membership is that a FAST lane may only be provided in the access area just before the inspection booth.²⁷ Any border congestion prior to that point slows down all vehicles equally. As modern customs administrations adapt to the new security environment, it is crucial to consult with commercial interests in order to encourage private sector participation, especially in difficult economic times.

Endnotes

- 1 This paper is part of a project on border security that has benefited from the assistance of Robert Shapiro, Rahim Punjani, Michelle Oliel, Gia Williams, Shannon Derrick, Angela Papanicolopoulou and Slawomir Szlapeczynski. The author would also like to thank Annette Demers, Reference Librarian, Paul Martin Law Library, University of Windsor. Financial support for the project from the Law Foundation of Ontario is gratefully acknowledged. Participation in the 2009 PICARD Conference was made possible by an academic development travel grant from the University of Windsor.
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- 6 Information is taken from the website of the Canada Border Services Agency, viewed 7 August 2009, www.cbsa-asfc.gc.ca.
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- 10 US Chamber of Commerce and The Canadian Chamber of Commerce 2008, *Finding the balance: reducing border costs while strengthening security*, February, ('Chambers of Commerce 2008') at 8.
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- 12 The example is taken from remarks by Greg Kanargelidis, 'The world's longest undefended border: gateway or checkpoint?', Canada-United States Law Institute Conference, forthcoming, 2008-09, *Canada-United States Law Journal*, vol. 34.
- 13 NAFTA, Article 1139.
- 14 NAFTA, Articles 1202, 1203, 1204.
- 15 NAFTA Annex I, Annex II, Canada. There are other potential WTO and NAFTA categories for analysis that are not examined here: sanitary and phytosanitary measures (SPS), concerning contaminants or toxins in imports; technical barriers to trade (TBT), concerning packaging or production methods for goods and operating methods for land transportation services in NAFTA. As well, this paper does not address immigration controls and the NAFTA chapter on temporary entry for business persons (see Chambers of Commerce 2009 at 13-14).
- 16 See remarks by Cyndee Todgham Cherniak, 'The world's longest undefended border: gateway or checkpoint?', Canada-United States Law Institute Conference, forthcoming, 2008-09, *Canada-United States Law Journal*, vol. 34.

- 17 A country might argue necessity or *force majeure*, for example. See Malcolm N Shaw 2003, *International law*, 5th edn, Cambridge University Press, pp. 710-713; Ian Brownlie 2003, *Principles of public international law*, 6th edn, Oxford University Press, pp. 448-449; James Crawford 2002, *The International Law Commission's articles on state responsibility: introduction, text and commentaries*, Cambridge University Press, pp. 170-173, 178-190.
- 18 Rosalyn Higgins 1994, *International law and how we use it*, Clarendon Press, Oxford, p. 74; Vaughan Lowe 2003, 'Jurisdiction', in Malcolm D Evans (ed.), *International law*, 1st edn, Oxford University Press, p. 342.
- 19 Antonio Cassese 2005, *International Law*, 2nd edn, Oxford University Press, p. 51.
- 20 *Agreement between Canada and the United States of America regarding Mutual Assistance and Cooperation between their Customs Administrations*, Can. T.S. 1985, No. 3, signed at Quebec 20 June 1984, in force 8 January 1985. For comparison purposes, note the requirement of notification to the local customs administration before an origin verification is conducted, pursuant to NAFTA Article 506(2). Similarly, the WTO Anti-dumping Agreement provides that verification investigations in foreign territory require notification to and lack of objection from the foreign government (*Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994*, Article 6.7).
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- 24 Chambers of Commerce 2009, at 7, 11.
- 25 *Grewal v. Canada (Solicitor General of Canada)*, [2007] F.C.J. No. 1637, 2007 FC 1263.
- 26 World Customs Organization 2007, *WCO SAFE Framework of Standards to Secure and Facilitate Global Trade*, June, p. 36.
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REGIONAL TRADE AGREEMENTS: AN AFRICAN PERSPECTIVE OF CHALLENGES FOR CUSTOMS POLICIES AND FUTURE STRATEGIES

Chiza Charles N Chiumya¹

Abstract

The proliferation of Regional Trade Agreements (RTAs) has not spared the African Continent. The formation of RTAs in Africa is championed by the Regional Integration Agenda under the auspices of the Regional Economic Communities. The challenges that customs administrations face when their countries become members of RTAs depend on whether the RTA is trade-creating or trade-diverting. It is the trade-creating RTA that presents the customs administration with the greater challenges. This paper looks at these challenges and the areas where they require customs administrations to concentrate their policies and strategies.

1. Introduction

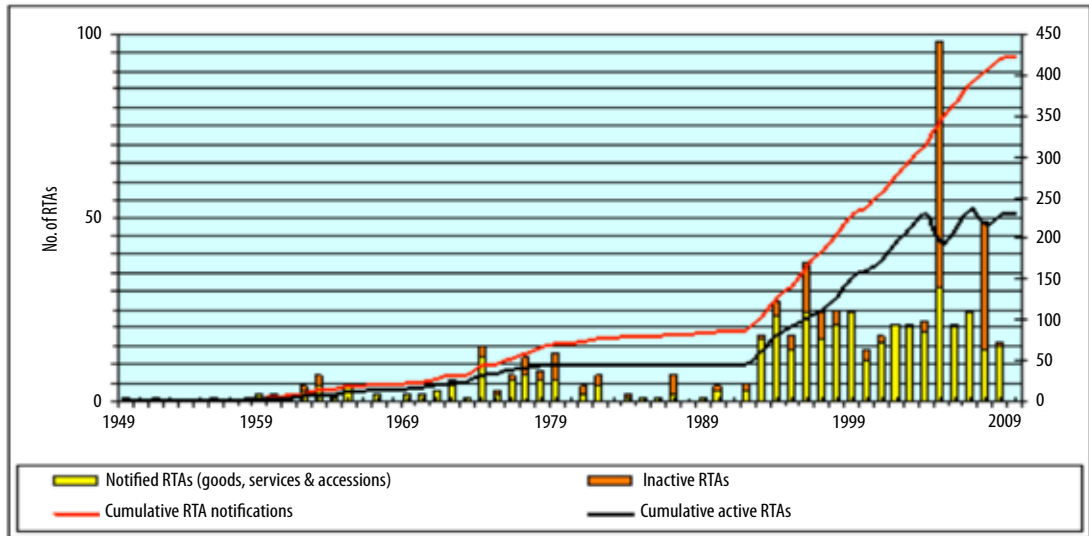
One of the major developments of the last two decades that international trade has experienced (apart from the advent of electronic commerce) has been the dramatic increase in regional trade agreements (RTAs). Between 1948 and 1994 there were only 124 RTA notifications whereas between 1995 and 2008 this figure more than tripled, with an additional 300 notifications (WTO 2009). Figure 1 below charts the global development of RTAs during this period.

The African Continent has not escaped the proliferation of regional trade agreements in the existing global trade regime. The formation of RTAs in Africa has mainly been championed by what are commonly known as Regional Economic Communities (RECs) as the continent moves towards the formation of the African Economic Community (AEC) that was established by the Abuja Treaty of 1991. Despite the fact that there are fourteen RECs in Africa, the Abuja Treaty of the African Union (the major African continental body) recognises only eight of them as Pillars of the AEC. These are the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC), the Economic Community of Central African States (ECCAS), the Economic Community of West African States (ECOWAS), Community of Sahel-Saharan States (CEN-SAD), the Arab Maghreb Union (AMU)², and the Inter-Governmental Authority on Development (IGAD).

Almost all the RECs have RTAs in the form of free trade. To date, COMESA has already launched its own customs union and ECOWAS is preparing to do the same. ECCAS and SADC each have their respective free trade areas and both are planning to launch their customs unions in 2010. Although the CEN-SAD is currently at the stage of a free trade zone it has not yet elaborated a distinct road map to strengthen integration amongst its Member States, whilst IGAD is planning to establish a free trade area by 2012. The EAC has also reached the stage of a customs union which was launched in January 2005. It has plans to launch a common market in 2010 with preparatory works well under way for the gradual

establishment of legal and technical instruments in that regard.

Figure 1: Notifications of RTAs to the WTO 1948 to 2008



Source: WTO Regional Trade Agreements: Facts and Figures 2009.

Despite this development, not all Member States of RECs have signed up to these agreements because the principle of ‘variable geometry’ has been widely applied. Whilst this may be a major challenge to the rapid evolution of FTAs to customs unions within the RECs, it grants countries the opportunity to implement the regional integration agenda at their own pace. The RECs in Africa are characterised by a multiplicity of membership (statistics of multiplicity). As a result, there is a cross-membership of RTAs in Africa. However, of late there has been a new development, especially in the Eastern and Southern African region where COMESA, SADC and EAC are in the process of forming a single FTA block. Another important characteristic of RECs in Africa is their multi-prong approach to regional integration. Thus, apart from the trade issues, RECs in Africa are also pursuing other agendas such as socio-economic development, peace and security, agriculture and environmental conservation.

This paper investigates some of the major challenges that customs administrations are likely to face in the near future and seeks to inform future customs policies and strategies on how to deal with these challenges. However, before analysing the challenges, this paper will look at the nature of RTAs because, ultimately, they have a bearing on customs administrations.

2. Nature of regional trade agreements

The impact of any given RTA on Customs will largely depend on whether the RTA is trade-creating or trade-diverting. A given RTA will be trade-creating if some domestic production in an RTA member is replaced by lower cost imports from another member. On the other hand, an RTA will be trade-diverting where lower cost imports from outside the RTA are replaced by higher cost imports from an RTA member as a result of preferential trade treatment.

A trade-creating RTA has both static and dynamic benefits arising from a reduction in administrative costs and an increase in bargaining power, competition, economies of scale and a stimulus to investment through tariff factories amongst other major factors.

A rigorous analysis of whether a particular RTA is trade-creating or trade-diverting is beyond the purview of this paper. However, as a general rule, a given RTA will lead to trade creation if its members maintained high pre-RTA trade barriers, have few trade barriers with the rest of the world, have a dense population and large number of memberships, the economies of its member states are more competitive than complementary, there was significant pre-RTA trade and the members are in close geographical proximity to each other (Salvatore 2004, p. 327).³

A trade-creating RTA has greater bearing on customs than a trade-diverting RTA because it will lead to an increase in both the volume and flow of trade amongst the member countries which, in turn, will lead to greater cross-border transactions with customs. Despite the conventional belief that RTAs in Africa cannot be trade-creating owing to the lack of complementary products and less product differentiation coupled with poor trade-facilitating infrastructure,⁴ there is some evidence to the contrary. For instance, in its annual trade report of 2007 (EAC 2008, p. 20), the East African Community (which has five members) reported an increase in both trade volume and flow following the formation of its customs union in 2005 and, as indicated above, ECOWAS is launching a customs union just like COMESA. Cernat (2001, p. 12) also finds in his study a strong case of trade creation between African RTAs which he attributes to greater trade facilitation amongst members of RTAs. This is a clear indication or a pointer to the fact that RTAs in Africa have good chances of being trade-creating, especially considering the sum of the welfare effects on all RTA members. An increase in both the flow and volume of trade is a very necessary component of economic growth. However, in both respects it has the potential to complicate the traditional customs compliance mission of regulatory enforcement and revenue collection. It is against this background that the challenges of the RTAs on Customs in Africa need to be considered.

3. Challenges of regional trade agreements to customs administrations

Due to the fact that the proliferation of RTAs increases both the flow and volume of trade, the following challenges arise.

3.1 Capacity building

In the face of trade-creating RTAs, the importance of capacity building for African customs administrations cannot be over-emphasised. RTAs have effects on the broad role, purpose, duties, and responsibilities of Customs (Feaver & Wilson 2007, p. 17), hence there is the challenge of coming up with broadly-based capacity building programs that enhance the abilities of both the institutional system and human resources that work with the system to be on a par with the new arrangements. This automatically places greater demands on the scarce resources that Customs works with and, depending on the type of RTA in place, costs may be high and complex as an administration tries to realign itself with the demands of the new trading regimes that will not only have to encompass trade facilitation but also security – amongst other issues.

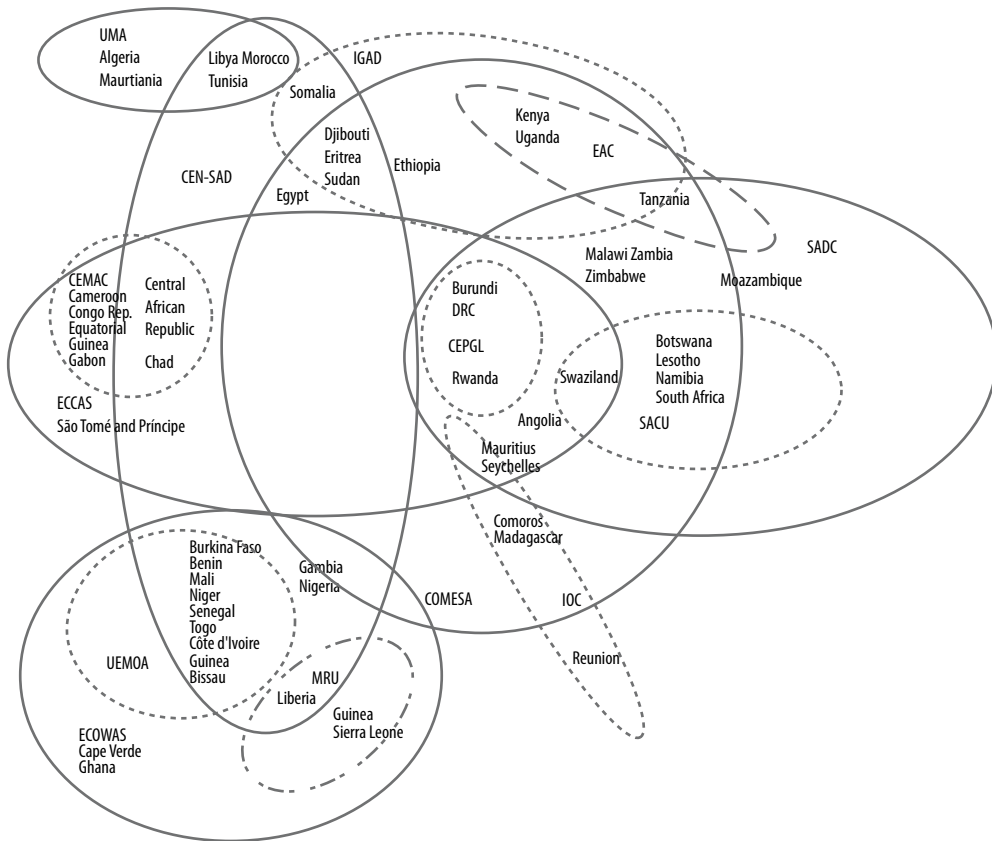
The immediate areas that would require capacity building are rules of origin and their application. These will require a deeper knowledge of some other non-traditional customs subjects such as the arm's length origin and destination principles, transfer pricing and production processes of multi- and trans-national cooperations, all of which are major determinants of a product's or service's origin.

The implementation of RTAs has led to an increased openness which, in turn, has broadened the role of Customs. Therefore, acquiring expertise in other emerging areas will assume critical importance, for example, it is expected that in the future Customs will have to focus much more on emerging areas such as intellectual property rights.

3.2 Multiplicity of membership

As already mentioned in the introduction, many African countries are members of multiple RECs. A study by the United Nations Economic Commission for Africa (UNECA) and the African Union Commission (AUC) revealed that, in 2006, an average of 95 per cent of the members of a given REC were also members of another. Thus, Africa also has a spaghetti bowl of its own (as shown in Figure 2 below). According to the study, this multiplicity of REC memberships was largely due to strategic, political, and economic considerations.

Figure 2: The spaghetti bowl of overlapping REC membership



Source: UNECA, Assessing Regional Integration Report II.

One major consequence of the statistics relating to multiplicity (as cited in the UNECA and AUC report) has been the duplication of programs amongst RECs. This has been most pronounced in programs relating to trade and market integration as well as trade facilitation which is of direct relevance to customs administrations.

In this situation, it is not unusual to find a given customs administration in Africa implementing more than one program in the same area but under two or more RECs. A good example can be found in the area of rules of origin, where customs officers have to cope with and be conversant with more than two sets of rules of origin, each of which has its own tariff schedule and implementation period. This situation not only drains already scarce resources but also may affect the efficiency of trade administration.

3.3 Customs ethics and integrity

The nascent RTAs in Africa can be translated as an increase in the lines of goods that are attributed zero or low rates of duty. According to the 'rational choice' theory, traders will use all means to ensure they pay the lower rates. Customs will therefore face challenges on two fronts, namely, an increase in commercial (tax) fraud and corruption. As far as the former is concerned, incidences of false documentation (most likely to affect invoices and certificates/proof of origin) may be on the increase as importers try to ensure their goods qualify for the lower rates in the RTAs. On the other hand, since Customs has the final say as to whether or not a given consignment qualifies for preferential treatment, there will be an increase in the combination of power, opportunity and incentive which Customs must also continue to contend with. Whilst the question of corruption has hitherto been regarded as a wholly one-sided affair, with Customs viewed as the sole cause of corruption, a fairer approach would be to recognise the duality of the problem. Corruption, when tolerated becomes a tradeable service with a complete set of consumers and suppliers (and hence a system of supply and demand) for customs and importers respectively.

In the case of lower rates of duties with respect to the RTAs, suppliers (Customs) can induce demand, usually through the utilisation of information asymmetry. Importers may also induce supply by offering better incentives to the suppliers. However, there is more incentive for importers to induce demand for a corruption service due not only to stiff market competition but also to the large markets that open up following the formation of RTAs. The fight against corruption in African customs administrations has thus itself obscured the dual nature of corruption and thereby, masked the reality that it is possible to win the fight convincingly by employing methods that not only stifle trade in the corruption service market but that also target both sides of the market. According to this argument, the real challenge lies in finding an appropriate strategy to fight corruption that takes its dual nature into account.

3.4 Alteration of the resource and incentive structure

In the short term, one effect of a regional trade agreement is the reduction of revenue due to lower rates or even a complete removal of customs duty. This is especially true in least developing countries (thirty-three of which are found in Africa) which lack adequate administrative capacity and an efficient domestic tax system that can compensate for lost revenue (Walkenhof 2006, p. 1). Where there has been significant trade diversion, this loss of revenue may be permanent. However, it also depends on other factors, such as the size of the tariff reduction and resultant growth in economic activity (that is, trade-creation effect).

In Africa, the majority of customs administrations are subsidised by the government and this loss of revenue will be reflected in government expenditure, thereby directly affecting their operations. In such situations, the programs that suffer most are those related to modernisation and capacity-building, two core issues for customs administrations. This scenario is worse in cases where governments have created revenue authorities that obtain a fixed percentage of the revenue that they collect (usually 2 per cent to 5 per cent) for their operations. Thus, a reduction in revenue automatically leads to a reduction in their resources. This applies more to FTAs than customs unions which are equipped with revenue compensation mechanisms. However, even in cases where such revenue compensation mechanisms are in place, there is an absence of clear policies within governments which ensure that customs administrations continue to obtain their fair share of the resource cake. In addition, the revenue loss compensation mechanism is usually marred by a myriad of operational problems and they may be temporary in nature.⁵

Due to the challenging nature of their responsibilities, many customs administrations have used a variety of incentives to motivate their staff. More often than not, these incentives come in the form of bonuses that have been tied to levels of revenue collection among other incentive structures. With the dawn of

RTAs such incentive schemes have become irrelevant as indicators of good performance in Customs. Thus, the current challenge is to base incentive and motivation schemes on performance indicators other than the level of revenue collection, which was tied to the traditional role of Customs and which has now been effectively altered by the RTAs.

3.5 Increase in the cost of customs administration

Regional trade agreements contain various clauses and articles whose implementation more often than not depends squarely on the customs administrations. Some of the major articles or clauses relate to customs and administrative cooperation, legislative procedures, facilitation of transit procedures, valuation, and trade defence instruments such as anti-dumping and countervailing measures, safeguards, and infant industry. These clauses and articles basically hinge on trade facilitation. The crafting of the articles and clauses is usually modelled on the international instruments and standards applicable in customs and trade such as the Revised Kyoto Convention and the GATT Valuation Agreement.

The importance of trade facilitation in a RTA cannot be over-emphasised because it can be a source of major gains in trade (as pointed out in 1. above). However, implementing the necessary trade facilitation and other RTA requirements will incur enormous costs. This subsection attempts to put selected costs into perspective. Some of them are overarching in nature and hence have already been dealt with in other subsections.

Trade-related infrastructure has an important role to play in trade facilitation. This is a major challenge to customs authorities which, despite not being in direct control of resources that are used for their infrastructure development, are nevertheless obliged to work towards the implementation of articles in RTAs. However, success in this endeavour will depend solely on the availability of the necessary infrastructure. A case in point is communication infrastructure, such as the installation of a computerised, real-time communication facility. The exchange of information between customs administrations is vital for the smooth operations of Customs in general, and this applies even more to those in an RTA. It goes without saying that such infrastructure comes at a high price and yet the relevant agreements do not always contain the necessary provisions for it, despite containing clauses or articles on customs cooperation. This becomes a major challenge to Customs as it gallops to fill this void. The other aspect of communication relates to inter-agency collaboration and cooperation because not all aspects of trade are dealt with by Customs but also by other governmental and non-governmental agencies such as Departments of Trade and Health, and Chambers of Commerce and Industry. As a result, there is a need to establish clear channels of communication for the smooth and swift flow of trade which may also require infrastructure and institutional reorganisation in order to function flawlessly. Overall, there is a clear case for establishing a single window for trade and integrated border management, which has enormous cost dimensions.

The proper monitoring of RTAs requires detailed trade data collection, analysis and presentation. While the collection of trade statistics is one of the traditional functions of any customs administration, the proliferation of RTAs has placed extra demands on those administrations, which may call for additional human and material resources (that is, in terms of the relocation or hiring of officers with the requisite knowledge on this subject or data processing equipment such as computers and servers). Again, this constitutes a major challenge to Customs in Africa that cannot be overlooked as such resources entail great expense. As pointed out in subsection 3.1, RTAs demand the re-tooling and hence re-training of customs officers owing to the radical change in their tasks which had been traditionally weighted towards revenue collection. This too can translate into major adjustment costs.

4. Regional trade agreements and future customs policy strategies

A whole body of challenges exists for Customs as a result of the proliferation of RTAs (as illustrated in section 3. above). On the other hand, this can also be seen as presenting customs administrations with a good opportunity to critically evaluate their operations in the light of new challenges and the community that they serve. In this respect, customs administrations could carry out a gap analysis to ensure that their tasks are relevant and are performed efficiently and effectively. This process of re-invention requires pragmatic policies that will have to be backed up by effective strategies to counteract and reduce the impact of the challenges for customs administrations that lie ahead. The World Customs Organization's 'Customs in the 21st century' document (widely known as the C21 document) provides a good starting point by recommending the future direction that customs administrations should take.

In this regard, future customs policies and strategies in Africa will have to emphasize both the adoption and adaptation of international standards. An adaptation strategy is particularly necessary as it will enable the chosen policies to work well within the existing customs framework. This approach will help to reduce reform-related implementation hiccups and bottlenecks and help the system to continue to work towards the goals it was originally intended to achieve. Specifically, there is a need to formulate policies and strategies that will focus on:

- Capacity building for Customs in order to ensure that it has full control of the local and regional supply chains. Feaver and Wilson contend that 'well designed and targeted capacity building (initiatives that are closely linked to PTA initiatives and objectives) can deliver additional efficiency benefits that may also have trade increasing effects' (Feaver & Wilson 2005, p. 12).
- Addressing resource constraints, through use of cheaper IT but efficient technologies and adoption of risk-based operations.
- Legal-based reforms that will allow the use of modern advances in technology, cross border cooperation and procedures, in line with the policies of RTAs.
- Enhancement of inter-agency cooperation between Customs and other border and cross-border actors.
- Issues of integrity that, if not adequately addressed, have the potential to cause significant trade-related economic loss by increasing the cost of doing business, marring the investment climate of a country or region and thereby grossly undermining the country's or region's competitiveness in the global trading system.
- Customs trade-related infrastructure development that can undermine institutional reforms no matter how well designed.

5. Conclusions

This paper has attempted to illustrate the challenges that RTAs present to the operations of customs operations in Africa and the possible policy and strategic options that would help minimise their impacts. The proliferation of RTAs has also brought to light the need for Customs in Africa to continue (or, if necessary, to lobby) to be part and parcel of RTAs negotiating teams in their countries because this will help to anticipate the challenges which they are likely to face when the RTAs are implemented. There is also a need for Customs in Africa to understand, follow closely and analyse trade developments at a national, regional, and global level.

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Endnotes

- 1 The author is indebted to colleagues at the Customs Cooperation Division of the Commission for their valuable comments. However, the views expressed in this paper are not those of the Division or the African Union Commission. All errors of commission and omission are his.
- 2 Union du Maghreb Arabe (UMA).
- 3 A good treatise of the same can also be found in Feaver & Wilson 2005, pp. 4-14.
- 4 See, for example, Yang & Gupta 2005, pp.38-39.
- 5 See, for example, Walkenhurst (2006) for a full analysis of revenue loss compensation arrangements in Africa.

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THE CROSS-BORDER DETECTION OF RADIOLOGICAL, BIOLOGICAL AND CHEMICAL ACTIVE AND HARMFUL TERRORIST DEVICES

Carsten Weerth¹

Abstract

The cross-border detection of radiological, biological and chemical substances by border authorities is a task of tremendous importance because it prevents terrorists from smuggling ‘dirty bombs’ into a country in order to perpetrate attacks on world trade. Although it is easy to detect radiological devices by measuring radiation levels, biological and chemical devices pose a much greater challenge. This paper investigates the problems confronting the detection of biological and chemical weapons as well as alternative methods of detection. It also calls for a greater awareness of radiological threats by the border inspection agencies. The paper concludes with a proposal for a World Customs Organization (WCO) recommendation on improving customs authorities’ awareness of radiological substances.

1. Introduction

Nuclear, biological and chemical (NBC²) terrorist weapons or related devices smuggled into a country by terrorists or hostile governments pose a significant and growing threat to civil societies. Covert attack is hard to deter or prevent and NBC weapons suitable for covert attacks are available to a growing range of states and groups hostile to the United States (US), European Union (EU), Australia, Canada and other countries such as Japan, Russia or India. At the same time, constraints on their use appear to be eroding (Falkenrath, Newman & Thayer 1998). Many agencies are involved in the cross-border detection of NBC devices, including customs authorities. This paper focuses on customs authorities’ awareness of NBC weapons at the international level and highlights the problems inherent in their detection.

2. The dirty bomb

2.1 Function of the dirty bomb

A dirty bomb (that is, a Radiological Dispersal Device, [RDD]) disperses harmful radiological substances by means of an explosive device. The device triggers an explosion which serves to dissipate the radioactive particles within a wall of fire (King 2004, p. 35). An RDD can also be used to disperse harmful biological and chemical (B/C) substances. Accordingly, this paper defines the term ‘dirty bomb’ widely, to include B/C substances.

From the view of border agencies, the greatest challenge in detecting a dirty bomb is that it is very simple to construct: most of the necessary substances can be obtained within the target country itself. This means that terrorists do not necessarily have to smuggle NBC substances into the country in the first place. Customs authorities should nevertheless be aware of dangerous NBC substances because some can be detected easily (see section 4. of this paper).

2.2 Types of dirty bomb

A dirty bomb can be an active explosive device which serves to dissipate harmful NBC substances. However, they can also be non-explosive devices which are concealed in the surroundings and release harmful NBC substances into the atmosphere gradually. Both types of dirty bomb represent a ‘terrorist threat’ to federal and state authorities (despite the fact that the device in isolation may not be explosive or harmful).

2.3 Weapons of mass disruption

Although dirty bombs contain very harmful substances, they are not as dangerous as genuine weapons of mass destruction (WMD). These devices are also termed ‘weapons of mass *disruption*’ because they, most likely, will cause only minor casualties but trigger widespread panic and fear in civil societies.

2.4 Possible harmful substances carried by dirty bombs

What NBC substances are lethal and most likely to be smuggled into a country for use in a dirty bomb? There have been some educated guesses in this respect which are listed below in Table 1. However, this list should not be considered exhaustive. Some lethal new viruses have been discovered that could be used in a bio-weapon. These include the Ebola or Marburg Viruses, which have been listed by the US Center for Disease Control and Prevention (CDC).³ The fact that both viruses have featured in the science-fiction TV series ‘Re-Genesis’ testifies to their widely-acknowledged ability to cause death.⁴

The following table provides an overview of known substances that could be used in the manufacture of WMD/dirty bombs.

Table 1: Lethal NBC agents that could be used in a dirty bomb

Device	Type ⁵	Harmful substance (Smuggling)
Nuclear Bomb	N	Plutonium-239, Uranium-233, Uranium-235, Uranium-238
RDD Dirty Bomb	N	Americium-241, Caesium-137, Cobalt-60, Iridium-192, Polonium-210, Strontium-90
Anthrax ⁶	B	Bacterium, <i>Bacillus anthracis</i> , Zoonosis ⁷
Plague ⁸	B	Bacterium, <i>Yersinia pestis</i>
Tularemia	B	Bacterium, pneumococcic, septic
Q-Fever	B	Bacteria, <i>Coxiella burnetii</i> , Zoonosis
Smallpox	B	Virus, <i>Variola major</i> and <i>Variola minor</i>
Botulism ⁹	B	Toxin, protein produced by the bacterium <i>Clostridium botulinum</i>
Brucellosis ¹⁰	B	Bacteria, Genus <i>Brucella</i>
Ricin	B	Toxin, extracted from the castor bean (<i>Ricinus communis</i>)
Viral Hemoragic Fever	B	Viruses, includes the <i>Filoviridae</i> (containing the Marburg and Ebola genera), and the <i>Arenaviridae</i> (for example, Lassa or Machupo)
Tabun	C	Nerve agent, a clear, colourless, and tasteless liquid with a faint fruity odour
Sarin	C	Nerve agent, a colourless, odourless liquid
VX	C	Nerve agent, an odourless and tasteless liquid with high viscosity and low volatility; VX has the texture and feel of motor oil, like motor oil

Device	Type ⁵	Harmful substance (Smuggling)
Mustard gas	C	Blister agent HN1: Bis (2-chloroethyl) ethylamine HN2: Bis (2-chloroethyl) methylamine HN3: Tris (2-chloroethyl) amine Bis (2-chloroethyl) sulfide
Hydrogen cyanide	C	Blood agent, HCN, a colourless, extremely poisonous, and highly volatile liquid that has a faint, bitter, almond-like odour
Phosgene	C	Choking agent, COCl ₂ , a colourless gas, in low concentrations its odour resembles freshly cut hay or grass

Source: Simons 2002, pp. 22-23 (updated); King 2004; and www.wikipedia.org.

A related question that arises is whether these harmful substances are likely to be smuggled into countries as part of cross-border transactions between a seller and buyer.

Most sources of radiological substances suitable for use in a RDD can be found in medical institutions worldwide which often store radioactive substances for the treatment of cancer (so-called 'radiotherapy'). Even within the medical profession, there is little awareness about the dangers presented by such radiological substances (Correia et al. 2005; Picano et al. 2007). Farms, pharmaceutical companies, scientific laboratories and food processing plants also use radiological devices. The major problem presented by these users is that some of them have poor safety standards and carelessly dispose of old equipment (for example, an irrigation machine or old radiological therapy equipment) despite the fact that they may still contain radiological substances.

Since 9/11, the US has spent large sums of money in tracking down missing radioactive materials (for example, in 2002, it spent \$US25 million alone). The secret services are concentrating their efforts mainly on Russia and the former states of the USSR. The International Atomic Energy Agency (IAEA) has also published data on the illicit trafficking of nuclear and radioactive material (IAEA 2006) and in 2007, held an international conference on this topic in Edinburgh, Scotland (IAEA 2008). This illicit cross-border trade in radioactive substances is highly covert and dangerous, involving terrorist groups and organised criminal networks. It demands the expertise of specialist crime-fighting agencies.

3. The dangers presented by NBC material

3.1 Dangers presented by nuclear devices

Nuclear weapons were developed at the end of the Second World War (WWII, 1939-1945) and used by the US against the Japanese cities of Hiroshima and Nagasaki. Nuclear devices emit three types of radiation (that is, α , β or γ radiation), all of which can be lethal. Depending on the dosage, radioactive substances cause radiation sickness which can quickly lead to a most painful death.

3.2 Dangers presented by biological agents

The dangers of infectious biological agents are manifold, depending on the type of germ released (for example, bacteria, fungi, worms, viruses, neurotoxins, etc.). Most germs used as bioweapons or dispersed by means of a dirty bomb will have a highly lethal effect on humans.

3.3 Dangers presented by chemical toxins

Chemical toxins are mostly gaseous substances that can cause harmful lung conditions and kill instantly. Chemical weapons were widely used during the Great War (WWI, 1914-1918) and WWII. There are

many varieties of chemical toxins and the type selected by terrorists will depend on the aim they wish to achieve. They usually take the form of liquids or gaseous substances that are both colourless and odourless.

4. A brief history of NBC smuggling and attempts by terrorists to use NBC substances

4.1 Which countries have NBC programs?

One expert puts it plain and simple: ‘Nobody really knows what’s out there’ (Simons 2002, p. 19) and over the years there have been numerous attempts to smuggle and acquire NBC substances. In particular, those found in the former USSR are distributed over the great expanse of new states and barren landscapes which makes them difficult to detect. It has been reported that radioactive waste and even weapons of mass destruction have simply vanished from their known sources.

Table 2 below lists the countries that are known to pursue programs to manufacture weapons of mass destruction using NBC substances. There is a risk that terrorist groups will seek to obtain NBC material and disperse it by means of a dirty bomb or other device. The table does not include countries which had atomic ambitions in the past. These are: Egypt, Algeria, Argentina, Australia, Brazil, Germany (West), Iraq, Yugoslavia, Libya, Poland, Romania, Taiwan, Sweden, Switzerland, South Africa, Belarus, Kazakhstan, Ukraine. However, their programs are no longer considered a threat to world security.

Table 2: Countries with NBC capability

Country	Atomic Weapons	Biological Weapons	Chemical Weapons
US	*	-	-
Russia	*	*	*
UK	*	-	-
France	*	-	-
Israel	*	#	#
China	*	#	#
North Korea	*	?	*
India	*	-	#
Pakistan	*	-	?
Libya	-	?	*
Sudan	-	?	?
Egypt	-	?	*
Syria	-	?	*
Iran	#	#	#
Saudi Arabia	?	-	-
Brazil	?	-	-
Terrorists	#	#	#

Key: * Known, # possible, ? possible offensive research programs

Source: Simons 2002, pp. 18-19 (updated); www.wikipedia.org.

4.2 Reported use of NBC material by terrorists

The secret services of many countries may or may not know the reality of the situation in this respect. However, this research paper takes account only of reported events or attempted attacks which are listed below.¹¹

- 1985 *Salmonella* was used by followers of Bhagwan Shree Rajneesh in The Dalles, US
- 1987 Possible use of X-Fever against British post offices by Ōmu Shinrikyō (so-called ‘Aum’ sect)
- 1995 Tokyo, subway attack with Sarin by Ōmu Shinrikyō (so-called ‘Aum’ sect)
- 1996 Russian separatists/terrorists in Chechenya planted a working RDD in a park in Moscow
- 1997 It was reported that over 1,500 radioactive devices have been stolen, lost or abandoned in the US alone. The US federal government can only account for 660 of these devices.¹²
- 2001 Many anthrax attacks carried out in the US on official departments and the White House by a worker of the biodefence lab, resulting in five casualties
- 2001 One anthrax attack in Kenya
- 2008 In Bangor, Maine, US an RDD was found in a dead man’s home with four small containers of chemicals and uranium (Griffin 2009)

Note: It is suspected that many more incidents have occurred around the globe which have not been publicised by the authorities.

In addition, King (2004) draws attention to two reports which are a cause for concern:

- there are rumoured to be 20 missing Russian nuclear (fission) suitcase bombs
- 38 Alazan warheads are reported missing. These have been modified to carry radioactive material by the Russian government, effectively creating the world’s first ‘dirty bombs’.

5. Detection of NBC materials

The detection of NBC substances ranges from easy to near-impossible. The challenges facing the detection of each substance are examined below.

5.1 Detection of nuclear substances

It is relatively easy to detect radiation using active measuring devices (so-called ‘Geiger counters’¹³). Passive detection devices (for example, so-called ‘dosimeter’ devices¹⁴) can measure the radiation emitted over a certain period at a certain location and are regularly worn by workers at atomic reactors.

5.2 Detection of biological substances

Controlling the cross-border importation of active biological substances by customs authorities has always formed a major part of their efforts to prevent viruses (for example, H5N1, avian influenza [H1N1], swine influenza), harmful insects (for example, *Anoplophora glabripennis*) or harmful plants from entering the customs territory. This is particularly crucial with regard to island territories (for example, Australia, New Zealand, Cuba) where the introduction of *neophytes* or *neozoes* (that is, non-native, exotic plants or animals) can have disastrous consequences for carefully balanced eco-systems. It can lead to the mass reproduction of invasive organisms and the extinction of native species.

Many invasive species have been transported to foreign territories in the ballast tanks of merchant ships. For example, water pumped into ballast tanks in the coastal areas of North America and later released

into the coastal waters of Europe or Asia. This problem has been compounded by humans, who have often introduced foreign animals in order to control unwanted biological species (for example, sheep in Australia, fish to eat other fish) thereby often doing more harm than good. The detection and control of biological organisms also has an important economic dimension since the introduction of harmful animals/plants/diseases may harm important produce (such as bananas, apples, grapes) and livestock (such as cattle, pigs, sheep). Detection of such threats is, however, far easier than the detection of relatively unknown substances: they could be any of a million possible substances. As a result, customs authorities are not in a position to easily detect harmful biological substances such as bacteria, viruses or fungi.

5.3 Detection of chemical substances

Another important task of customs authorities and other border agencies is to intercept the cross-border transport of active chemical substances in order to prevent their dispersal into the atmosphere by means of explosive devices. As with biological substances, however, detection is challenged by difficulties in identifying the target substance since there are many structurally related and equally effective chemicals (that is, the possibilities are practically endless). As a result, customs authorities are poorly positioned to intercept harmful chemical substances. However, unlike biological substances, chemical substances do contain some easily measurable indicators, for example, their acidity can be measured using a pH-meter or mass spectrometers (the latter are more important in practice).

5.4 Detection technology used by customs authorities

A most successful method used by customs authorities in order to detect illegal substances is the sniffer dog that can detect either actively or passively the presence of certain substances in luggage (for example, explosives, drugs, living or dead animals). Sniffer dogs have been trained to detect a variety of substances and could also be trained to detect others. In fact, this technique has recently been proclaimed as the ‘most efficient form of “customs technology” ’ by WCO Secretary General Kunio Mikuriya (WCO 2009a). However, the broad range of possible hazardous NBC substances limits the overall idea of training sniffer dogs for such substances because many of them are odourless, colourless and life threatening.

Geiger counters and wipe tests for the detection of special drugs are also widely used. However, although the latter might be effective in detecting many biological or chemical agents, there are simply too many variants to cope with. Moreover, there are no easy-to-use wipe tests available for customs authorities.

Many experts are aware of the fact that the major threat does not lie in the smuggling of relatively small NBC devices but rather in the use of ocean containers which are big enough to contain a dirty bomb and larger NBC devices. The greater dimensions of these devices present a real threat to national security. The Container Security Initiative of the US Department of Homeland Security is a measure specifically designed to prevent dirty bombs being smuggled into a country by means of ocean containers. In this regard, many US customs officers are currently working abroad in Europe and Asia to inspect container ships prior to their departure for the US.

6. NBC awareness of customs authorities

Steps should be taken at the international level to raise customs authorities’ awareness of the threats presented by NBC substances. Of course, there has always been an awareness of the dangers presented by invasive species or chemical substances. However, the new variety of NBC threats presented by terrorists makes it all the more important to ensure that customs officers have in-depth knowledge of NBC threats and are provided with the necessary training and equipment to carry out their inspection activities properly.

In addition to the need to prevent terrorist attacks, international trade presents a number of hazards that demand an awareness of NBC substances. The following provides four examples of such hazards.

- Containers that have been treated with chemical wood products (in order to prevent infestation with bugs such as the Asian beetle *Anoplophora glabripennis*). Such containers can emit toxic gaseous substances which may cause severe illnesses if opened by customs officers unaware that the container emits toxic fumes.
- Radiation-emitting steel was discovered throughout Germany in 2008 during the course of random inspections. The steel was reported to have been imported from India and its radioactivity stems from the use of Cobalt-60 (Co-60). The steel industry is aware of the dangers of radiation contamination and steel producers have therefore installed Geiger counters at the entrances to their plants (*Der Spiegel* 2009; Schwägerl 2009).
- In 1987, an incident occurred in the Brazilian city of Goiânia (the so-called ‘Goiânia-accident’) when radioactive material was stolen from an unused hospital (the Instituto Goiano de Radioterapia). A scrap-monger extracted radioactive material from an old radiotherapy device which was then handled by members of his family and friends. Parts of the city are still radioactively polluted (IAEA 1988).
- In 2000, a radiological accident occurred in Samut Prakarn, Thailand. Here, a disused Cobalt-60 teletherapy source was stored, apparently without knowledge or permission of the regulatory authority, at an insecure outdoor premises normally used for storing new cars. Two local scrap collectors bought some scrap that included the source and took it home to dismantle and sell; the incident resulted in death, injury and widespread concern (Mac Kenzie 2006).

According to two *New Scientist* reports, there are approximately 30,000 old devices containing NBC substances stored in Europe alone, of which almost 70 go missing each year (Edwards 2002, 2004a, 2004b). Since 1993, the IAEA Illicit Tracking Database has recorded 827 confirmed cases of incidents reported by 81 IAEA Member states of either illicit trafficking or other unauthorised activities involving nuclear (224 cases) or other radioactive materials (516 cases) (IAEA 2006).

Customs officers and border control agencies should bear in mind that nuclear and radiation materials are transported in lead-shielded containers of various sizes so that suitcases or other containers which are unexpectedly heavy should indicate the need to carry out an inspection using a Geiger counter. Furthermore, the use of passive dosimeters should form a standard part of the personal safety precautions of security officers and should be regarded as essential to carry out safety and security inspections at all borders throughout the world.

7. Call for NBC awareness within the WCO

The WCO should promote NBC awareness amongst its Member states by issuing and circulating a declaration to this effect. Further, national customs authorities as well as other competent authorities, such as the IAEA, should exchange information regarding techniques and detection devices in order to develop a common standard and joint approach to combat the proliferation of NBC devices.

Some national governments are well prepared and their measures can be used as a blueprint for strategies and training programs, for example, the US CDC has a very useful homepage, ‘Bioterror emergency preparedness and response.’¹⁵ The IAEA¹⁶ has also issued the so-called ‘Sealed radioactivity sources toolkit’ that focuses on the long-term issues in safely and securely managing radioactive sealed sources (Mac Kenzie 2006). At a supranational level, the EU has initiated a program of radiological and bioterror awareness.¹⁷

The WCO and the IAEA have been cooperating to combat the illicit trafficking of radiological sources or nuclear fuel/material since May 1988 when they signed a Memorandum of Understanding (WCO

2009b). However, it is also important that the WCO Member states upgrade their detection equipment and personnel training regimes in order to appropriately protect their border control officers and combat cross-border smuggling.

8. Conclusions

It has often been the case that terrorists have successfully carried out attacks without the use of NBC substances, for example, car bombings, backpack bombings, the airplane attacks on September 11, 2001. Such threats are very real and still quite likely to occur. It is also possible to construct NBC devices using simple, everyday objects. For example, all that terrorists need to carry out an anthrax attack is an ordinary envelope. It is simply not possible to control all means of cross-border transport, for example, scanning all letters and parcels sent internationally.

It is also difficult for border control agencies to effectively monitor large frontier areas, such as the long coastlines along the US, US-Canada or Russian border. Drug traffickers use the vast stretches of these 'green' or 'blue' borders to smuggle their goods into the target country. Indeed, it has been reported that drug cartels use submarines or speedboats to transport cocaine from South America into the US. That said, the fight against drugs cannot automatically be compared with the fight against NBC trafficking (Kleimann, Reuter & Caulkins 2002). The WCO and its Member states should therefore focus their efforts on the likely means of delivery as well as the large amounts of cargo transported, for example, bulk shipments or cargo transported in containers.

UNICRI (United Nations Interregional Crime and Justice Research Institute), EUROPOL (the EU Police Agency) and the SECI Center (Southeast European Cooperative Initiative Regional Center for Combating Trans-Border Crime)¹⁸ also play an important role in combating the smuggling of NBC substances. It is widely accepted that enhancing cooperation among law enforcement authorities at national and regional level is a fundamental pre-condition of preventing the illicit use of NBC agents; broad expertise is required to effectively address these issues (WCO 2004). As such, law enforcement authorities and international organisations must establish permanent, comprehensive and efficient channels of communication, as recommended by the UN Security Council Resolutions 1373 (2001), 1456 (2003), 1540 (2004), upgrade equipment and offer sufficient training for all enforcement officers.

The US Container Security Initiative (CSI) focuses on the analysis of data 24 hours prior to the departure of a vessel. So far, this approach has proved very successful.

The US is planning to introduce 100 per cent scanning of all containers bound for the US. This proposal has sparked international controversy mainly because it promises to incur a great deal of expense owing to the cost of acquisition of new detection devices, improved harbour facilities and better trained cross-border authorities. However, it must be pointed out that Geiger counters are only capable of detecting radiological or nuclear material. It is not apparent how biological and chemical materials which may also be very harmful and hazardous are to be detected. Another important consideration regarding 100 per cent scanning is that whereas industrial countries may be in a position to upgrade their harbour facilities without too much difficulty and within a relatively short period, this is unlikely to be the case with the numerous small harbours in the third world.

A great deal of technical research is now focusing on so-called 'smart containers'. These containers are able to transmit a message via satellite, signalling when a seal has been broken or the cargo tampered with. However, there do not seem to be sufficient precautions in place to prevent NBC smuggling or attacks. Reports should therefore focus on the contents of a container rather than the seals. Placing a smart seal on a container which contains a dirty bomb will simply ensure its safe and secure delivery and nothing more.

Proposal: Introduction of a GPS black box for containers/bulk ships

Black boxes are widely used in airplanes, ships and trucks. Their purpose is to record all the parameters of a journey in order to explain the causes of any accidents that may occur.

For safety and security reasons, a smart black box should be introduced for containers that would continuously measure certain values (temperature, pressure, acidity, radiation). When a reading fluctuates rapidly/dramatically, an alarm could be triggered to indicate an immediate safety/security threat, for example, a chemical or gas leakage, or imminent explosion.

By equipping vessels carrying bulk cargo and containers with a smart detection device, the wealthy industrial countries at risk of terrorist attacks could satisfy their need for security whilst meeting the costs themselves (that is, upgrading carrier vessels and their containers using all available technical means).

Furthermore, customs officers around the world must be made aware of the dangers that NBC devices present. They must also be adequately trained, equipped with state of the art detection devices (Geiger counters) and personal security equipment (dosimeters).

Annex 1: Important symbols for dangerous goods



Biohazard



Radioactivity



New radioactivity
sign of IAEA



Toxic

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Endnotes

- 1 The author has studied biology and life sciences at the Universities of Bremen and Glasgow and holds a BSc in molecular and cellular biology. This is privately conducted and financed research and does not comprise the official opinion of either the European Commission or Germany's Customs Service if not otherwise stated. The author would like to thank learned friends for insightful discussions, including Professor Dr Björn Poppe (Institute of Physics, Medical Physics, Universität Oldenburg, Germany) for all radiological issues; Dr Martin Glodde (IBM, NY/US) for the input on chemical aspects; Dr Olaf Kniemeyer (Leibnitz-Institut für Naturstoff-Forschung und Infektionsbiologie e.V., Hans-Knöll-Institut, Jena, Germany) for all biological issues.
- 2 Another common abbreviation is BCNR for biological, chemical, nuclear and radiating devices; for the purpose of this paper both abbreviations are regarded as being similar.
- 3 See www.bt.cdc.gov/agent/agentlist.asp.
- 4 See www.regenesistv.com.
- 5 N (Nuclear), B (Biological), C (Chemical).
- 6 See US Department of Health and Human Services, Division of Foodborne, Bacterial and Myotic Diseases, viewed 26 July 2009, www.cdc.gov/nczved/dfbmd/disease_listing/anthrax_gi.html.

- 7 Zoonosis is an illness that can transfer from animals to human beings.
- 8 See CDC Plague Home Page, viewed 1 August 2009, www.cdc.gov/ncidod/dvbid/plague/index.htm.
- 9 See US Department of Health and Human Services, Division of Foodborne, Bacterial and Myotic Diseases, viewed 1 August 2009, www.cdc.gov/nczved/dfbmd/disease_listing/botulism_gi.html.
- 10 See US Department of Health and Human Services, Division of Foodborne, Bacterial and Myotic Diseases, viewed 1 August 2009, www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm.
- 11 Sources include public papers, public broadcastings, King 2004, and www.wikipedia.org.
- 12 King 2004, p. 69.
- 13 Viewed 1 August 2009, http://en.wikipedia.org/wiki/Geiger_counter; a suitable Geiger counter for security personnel is FRISKY, www.gammasonics.com/frisky.html.
- 14 See <http://en.wikipedia.org/wiki/Dosimeter>, and for more detail, the German Version, viewed 1 August 2009, <http://de.wikipedia.org/wiki/Dosimeter>.
- 15 See www.bt.cdc.gov.
- 16 Many technical and political publications on radioactive sources are available at www.iaea.org.
- 17 EU Commission 2001; EU Council 2004 and 2007; EurActive 2007.
- 18 The SECI Center is an operational regional organisation that brings together police and customs authorities from 13 member countries in Southeast Europe. See www.secicenter.org.

Carsten Weerth



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Section 2

Practitioner Contributions

ACADEMIC REFORM FOR THE TRAINING OF INTERNATIONAL TRADE PROFESSIONALS

Ricardo Echegaray

Abstract

The Argentine Republic acknowledges that, in order to strengthen the National State, all of its agencies must achieve efficiency, quality and transparency in the creation and implementation of public policies. In order to be successful, these objectives must be aligned with career development. To this end, the Federal Administration of Public Revenues (AFIP) Institute of Studies is being redesigned to meet the PICARD Professional Standards. The outcome will be twofold: firstly, customs officers will enhance their performance in detecting, for example, trade fraud, tax evasion, smuggling, and counterfeiting, and secondly, they will be more involved with the new requirements of Customs in the 21st century as their training will be endorsed by the World Customs Organization (WCO).

Background

The World Customs Organization (WCO) promotes customs modernisation through compliance with safety and transparency in international standards, and through the training of professionals specialised in the facilitation of international trade. The WCO Capacity Building Development Compendium states that ‘an effective, competitive modern Customs service must have in place or must develop an organisational structure which is capable of delivering the required results efficiently and effectively with resources allocated, delivered and managed to meet the priority needs’ (WCO 2009).

To this end, the government of the Argentine Republic has been working to strengthen the National State so that its different agencies achieve efficiency, quality and transparency in the creation and implementation of public policies. The Argentine Customs is part of this process. A well organised customs administration enables the government to meet its objectives in connection with revenue collection, trade facilitation, trade statistics and the protection of society from a range of security concerns.

To date the Argentine Customs has achieved substantial progress in addressing tax fraud, the risks of tax evasion, international trade transactions carried out through no-nominal tax jurisdictions, under-invoicing and other threats posed by globalisation and current international trade. In 2005, a customs modernisation process was begun by redesigning the internal structure of the agency. Through Executive Order No. 898/05 the Deputy Directorate General of Customs Control was created with a view to designing customs control strategic policies, collecting and analysing information for the definition of risk profiles, and articulating actions between Customs and other state agencies in relation to operational and technical issues.

The Deputy Directorate General of Customs Control is made up of the Directorate of Risk Analysis which focuses on areas such as selectivity and strategic management of customs valuation, and of the Directorate of Investigations which specialises in drug trafficking, counterfeiting and non-economic prohibitions.

Since 2005, the Argentine Customs, through its governing body, the Federal Administration of Public Revenues [*Administración Federal de Ingresos Públicos*] (AFIP), has taken the initial steps to improve the training provided to its officers. However, AFIP understands that it is now time to move forward by adopting a more comprehensive training program which is aligned with WCO standards. More knowledgeable and skilled officers will be able to respond more quickly to the demands of Customs in the 21st century. By providing professional customs training, the Argentine Customs is meeting its commitments to comply with international and regional standards related to the movement of people and goods.

Professional training of Argentine customs officers

AFIP seeks to enhance its standard of professionalism and ensure that its personnel development go hand-in-hand with organisational development. In order to achieve these goals, the Argentine Customs professional training of its officers is threefold: through the AFIP Institute of Studies, the Training Directorate and the Cooperation Agreements signed with the private sector and other countries.

AFIP Institute of Studies

In 2006, through Disposition 178/2006 (AFIP 2006), the AFIP Institute of Studies was created with the aim of contributing to the professional training and technical specialisation of AFIP personnel, university graduates and staff in organisations focused on tax-related activities. The Head of the Federal Administration of Public Revenues is the President of the AFIP Institute of Studies and the Academic Council is made up of the Director General of Customs, the Director General of Tax and the Director General of Social Security Resources.

Since 2006, although training courses were organised and delivered, the Institute of Studies has focused mainly on research, publication of materials and exchange of information with other national and foreign academic institutions. From the experience gained throughout this time, AFIP acknowledges the importance of research but is, at the same time, aware of the gap still existing between academic research and practical customs operational activities. Customs carries out controls and inspections around the clock and its officers need to be trained to react immediately.

The existence of the AFIP Institute of Studies shows the commitment of the Argentine government to the technical and managerial training of Customs' operational staff and middle management who are often underrated. These officers possess valuable knowledge about trends and patterns in the movement of goods across borders that is instrumental in detecting trade fraud and illegal transactions.

For this reason AFIP is widening the scope of its Institute of Studies by promoting academic initiatives that foster personnel development and career planning in line with WCO capacity building guidelines. The WCO defines capacity building as 'activities which strengthen the knowledge, abilities, skills and behavior of individuals and improve institutional structures and processes such that the organization can efficiently meet its mission and goals in a sustainable way' (WCO 2009). AFIP recognises the key role of capacity building and is currently encouraging the execution of a Memorandum of Understanding between its Institute of Studies and one of the universities that adheres to the PICARD Professional Standards.

It is important to highlight the impact on capacity building of the strategic link between the AFIP Institute of Studies and universities. This alliance represents an opportunity for customs officers to be trained in skills and abilities which are endorsed by the WCO.

The synergy between the AFIP Institute of Studies and these centres of studies can assist the Argentine Customs in addressing the Customs in the 21st century ten building blocks (WCO 2008) by providing customs personnel with the necessary tools to optimise customs transactions on a global scale by, among others, implementing modern working methods, techniques and procedures.

Once the AFIP Institute of Studies actively implements the PICARD Professional Standards, it will be able to articulate policies and measures with tertiary level institutions and national and foreign universities so that their graduates acquire the necessary knowledge and develop the necessary skills to be recruited by Argentine Customs. This training will also pave the way for customs staff to feel more involved with and committed to the model of Customs in the 21st century without the uneasiness and resistance often associated with organisational change and transition.

The international customs community stresses the importance of global cooperation and harmonisation. To reach these objectives customs officers must be trained through a comprehensive program that is recognised internationally. In this way, all customs officers, regardless of their nationality, will acquire the same knowledge and develop the same abilities and skills to ensure effective controls.

Directorate of Training AFIP

Apart from the courses, lectures and workshops organised by the AFIP Institute of Studies, AFIP has a Directorate of Training dependent on the HR Director General (AFIP 2005) for the training of its personnel in risk management, reliable economic operator and trade fraud, and other aspects of customs work. These are priority and essential elements when striving to become an effective and efficient customs agency in the 21st century. Some of the training activities have been centered around the functioning of the risk analysis laboratory; the use of non-intrusive control equipment; training to become dog handlers; and courses to identify the steps to detect false invoices, undervaluation, or the diversion of imports and exports through third countries.

Cooperation agreements signed with the private sector and other countries

In forums, working days and workshops jointly organised with different trade and industry chambers and private organisations, AFIP fosters the dissemination of information regarding existing rules to address the risk-management issues mentioned above. As well, AFIP has shared best practices with Customs worldwide by signing cooperation agreements and memoranda of understanding with several foreign agencies.

Conclusions

The activities that AFIP has implemented throughout this time have enabled it to develop a clear vision of the training needs that could be covered by adhering to the PICARD Professional Standards.

AFIP understands that, as a state agency, it must take the lead to establish training and development standards designed to raise the professionalism of customs officers. National universities may well follow suit. AFIP would now like to encourage universities to update their curricular content so that they can develop educational programs which provide professional qualifications for customs staff.

These guidelines could be reflected in subjects such as international customs law; best customs practices; auditing and risk management procedures based on intelligence information; rules on factory brands and copyright; border management; modern working methods, and techniques and procedures. In this way, the universe of essential issues for customs development and evolution pursuant to the demands of globalisation and international logistics and the directives and best practices recommended by the WCO would be present at the genesis of customs officers' training.

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Ricardo Echegaray



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THE IMPACT OF THE EXCHANGE RATE ON THE ORIGIN OF GOODS: HOW RELIABLE IS PROOF OF ORIGIN IN TIMES OF ECONOMIC TURMOIL?

Cezary Sowiński

Abstract

This paper examines the influence of rapid changes in the exchange rate on the origin of goods produced in the European Union (EU) and exported to the Republic of South Africa (RSA). It raises concerns about whether the EU origin declaration can be trusted at this time of economic crisis which has severely influenced exchange rates. The analysis performed using a simplified model of a product manufactured in the EU and imported to the RSA under preferential duty treatment provides insight into how easily commercial fraud can be committed, even unintentionally, by EU exporters of goods at this time of economic turmoil.

1. Introduction

At first glance, the rules of origin (RoO) appear to be exclusively technical despite their practical importance. Theoretically, if a given country was to apply most favoured nation (MFN) treatment to imported products their origin would probably not matter at all. Nevertheless, countries often use the RoO (referred to as ‘non-preferential’) for a variety of purposes. This paper focuses on their purpose of distinguishing foreign from domestic products.

There are also many countries that depart from the MFN treatment of imported products. In any case, if an importing country wishes to differentiate between countries from which it imports products (for whatever reason), it first needs to identify the nature of the link between each of these countries and the product it wishes to subject to a different (that is, preferential) treatment.¹ This is how preferential RoO come to exist: by adopting them, the importing country defines the foreign origin of a given product and the conditions under which it will regard that product as originating in the country to which it grants preferential treatment.

1.1 Concept of originating products

Since only ‘originating products’ qualify for preferential treatment on importation to a given country, it is crucial to define the concept of ‘originating products’. In general, a product is considered to ‘originate’ in the preferential trade partner when it is wholly produced or obtained there. This condition is usually satisfied by raw materials and agricultural products as well as secondary products manufactured locally.² In other cases (that is, involving manufactured products), imported materials (that is, of products containing local and imported inputs) must be ‘substantially transformed’ in the country of the preferential trade partner in compliance with the respective RoO before the product can be regarded as an ‘originating product’.³

At least three different theories or methodologies are used in order to decide whether a product has been substantially transformed in the country of a preferential trade partner: the technical test, the customs classification test and the economic test. The first (also commonly referred to as the ‘specific processing test’) is technical in nature and requires that a specific process must be carried out locally before a product can be considered ‘originating’ (that is, the product resulting from a process or operation in the exporting country must have its own specific properties and composition that it did not possess prior to the process or operation). According to the customs classification test (also called the ‘change in tariff heading test’), the process or operation performed on a product in an exporting country results in the product being classified under a different heading of the customs tariff classification (HS nomenclature). However, for the purposes of this investigation, the ‘value-added test’ is the most important. This is the most common form of economic test and stipulates, as a rule, that a product can be considered as having local origin provided the foreign inputs do not exceed a certain threshold.

Of the three methodologies, the value-added test is arguably the easiest to apply in practice. Nevertheless, it is regarded as having a number of weaknesses of which the following are the most important:

- it incurs a relatively high administrative burden largely due to the necessity of calculating the various cost components
- it is susceptible to the impact of fluctuating exchange rates (a weakening of the exchange rate raises the value of foreign inputs in relation to the total cost/ex-works price of the given product).⁴

Although both weaknesses are relevant to this paper, the second is especially important. In this respect, attention focuses on the question concerning the extent to which the fluctuating exchange rates affected the accuracy of EU proof of origin during 2008 – regarded as the year in which the economic crisis hit the world.

1.2 Evidence of origin

The regulations relating to evidence of origin reflect the practical dimension of RoO. The application of trade policy measures (including factors determining the imposition of import duties), depends *inter alia* on the origin of the goods imported. Only in a limited number of cases do the characteristics or self-contained features of goods provide sufficient information on their origin. Thus, the origin of goods must be confirmed by other means – usually by drawing up special documents.

The determination of origin should, as a rule, be properly and clearly documented in order to prevent any doubts as to its veracity. Generally, even a simple statement made by the exporter/supplier of goods on an invoice or other commercial document accompanying the goods (‘invoice declaration’) will suffice. The origin of goods can also be confirmed by means of transportation documents or a label permanently displayed on the goods or its packaging (for example, ‘Made in the EU’). Nevertheless, in specific situations (and especially with regard to preferential agreements), such a statement or information must be confirmed or authenticated by the relevant authorities or authorised person who are independent of both the importer and exporter. In some cases they have to fill out special forms (‘origin certificates’) which attest to the origin of goods. On the other hand, there are also situations where the trading person is exempted from furnishing any proof of origin.

For the purposes of this paper, it is assumed that the relevant parties have approved exporter status. According to European Community customs law (and virtually all preferential agreements the EU has concluded with its trading partners), any exporter who makes frequent shipments of products conferring preferential origin under specific regulations can be authorised by the customs authorities of the exporting country to file invoice declarations. However, an exporter seeking such authorisation must offer, to the satisfaction of the customs authorities, all guarantees necessary to verify the originating status of the products besides meeting the other requirements (in particular, presenting the appropriate documents and data that prove the information provided is correct).

Once approved exporter status has been granted (usually after a customs audit), the exporter will be able to file an invoice declaration without any interference from the customs authorities of exporting countries. In practice, this means that once the customs authorities have inspected the initial shipment to ensure compliance with the origin requirements of a specific preferential agreement, they will not inspect any subsequent shipments of the same goods to ensure accuracy of the data regarding their origin held by the approved exporter. Of course, the use of this simplification will be monitored by the customs authorities. They are required to withdraw the authorisation if the approved exporter no longer satisfies the requirements imposed by this status.

1.3 The EU-RSA agreement

This paper relates directly to the specific case where goods are produced in the EU and imported to the RSA under the application of preferential duty rates. Therefore, the next stage of the investigation is to explain the basis upon which preferential treatment is conferred. The relevant regulation is the EU-RSA agreement⁵ which provides for substantial duty reductions regarding trade in products originating in either of the contracting parties.

As far as the concept of originating products is concerned, the EU-RSA agreement utilises all methodologies that determine whether a product has been substantially transformed in the country of the preferential trade partner. These have already been described in some detail above. They are often applied in combination and, for some products, exporters can choose between one of two tests.⁶

The EU-RSA agreement also utilises the general regulations relating to evidence of origin (as described above). Consequently, the approved European Community exporter is able to file invoice declarations to confirm the EU origin of goods manufactured in Poland, which provide the basis for granting the goods preferential treatment when they are imported into the RSA.

In this situation (taking into consideration the anticipated negative impact of exchange rates on the origin of goods exported to the RSA), one aspect of the subsequent verification of proofs of origin by means of invoice declarations becomes especially significant. According to Article 31.1. of the Protocol 1 to the EU-RSA agreement, '[s]ubsequent verifications of proofs of origin shall be carried out at random or whenever the customs authorities of the importing country have reasonable doubts as to the authenticity of such documents, the originating status of the products concerned or the fulfilment of the other requirements...'. This means that the verification procedure for the origin of goods can only be initiated by the customs authorities of either the exporting or importing country. The former can do so according to its discretion, whereas the customs authorities of the importing country must show reasonable cause in relation to the products or documents in question. Taking this into consideration, Article 31.1. clearly makes the customs authority of the exporting country responsible for continuously monitoring of the accuracy of proofs of origin in the form of invoice declarations by the approved EU exporter.

If the subsequent verification of proof of origin is negative, the importer will have to pay the outstanding customs duties at the higher duty rate (that is, without the possibility of applying preferential rates to imports). In view of this, it is important to consider Article 33 of Protocol 1 to the EU-RSA agreement, which states that 'penalties shall be imposed on any person who draws up, or causes to be drawn up, a document which contains incorrect information for the purpose of obtaining a preferential treatment for products'. As a result, the EU-RSA agreement holds the European Community exporter responsible for any breach of the customs provisions – even if it is unintentional. As sanctions have not yet been harmonised by EU law,⁷ the Polish penal code applies in such cases, which should make the exporter even more careful in verifying the EU origin of its products.

2. A model

Attention has already been drawn to the fact that the value-added test is susceptible to the impact of fluctuating exchange rates, albeit in the context of developing countries or countries with small economies.⁸ However, the recent economic crisis may well see this weakness becoming a problem in developed countries with large economies (like Poland).⁹ The fluctuating exchange rates of various currencies in today's international trade lead one to consider (in theory at least) what their impact will be on an EU-based entrepreneur (established in Poland) which produces goods within the territory of the EU and exports them to the RSA and, in particular, whether it is possible to verify EU origin in such a situation by means of an invoice declaration for each and every product manufactured within a certain period of time.

Consequently, a simplified model of a product manufactured in Poland and exported to the RSA has been constructed in an attempt to ascertain whether the EU-based entrepreneur may face such a problem and thereby commit (unintentional) customs fraud. This model poses the following three questions:

1. Can an EU proof of origin be relied upon at a time of economic crisis that severely influences exchange rates?
2. Under what circumstances (beyond the exporter's control), can the rules of origin be infringed?
3. What steps can be taken to prevent 1. and 2. from occurring in practice?

2.1. Model assumptions

This analysis is based on the following assumptions:

- an entrepreneur based in Poland manufactures a product classified as HS 8418 (refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps other than air conditioning machines of heading No 8415)
- the final product (refrigerator) is exported to the RSA under a long term commercial contract
- refrigerators produced in Poland confer European origin (that is, they meet the origin criteria provided for in the EU-RSA agreement: 'manufacture in which the value of all the [non-originating] materials used does not exceed 25 per cent of the ex-works price of the product')
- the model product comprises a number of components, which are either locally acquired/produced (that is, of EU origin) or imported (that is, of non-EU origin)
- as far as the imported components are concerned, their prices are contractually set in foreign currencies (other than the Polish Zloty [PLN])
- as far as components that are sourced from EU member states other than Poland are concerned, their prices are contractually shown in euros (EUR)
- the rest of the components are sourced locally in Poland and their prices are contractually shown in PLN
- the prices of all components are fixed during the period of analysis
- other costs and mark-ups are also fixed
- the shipments of finished products to the RSA are effected on a monthly basis, accompanied by a commercial invoice including confirmation of origin
- based on the invoice declarations, the product is imported to the RSA under a preferential duty rate of 0 per cent (instead of MFN rate 25 per cent).

Table 1 presents the composition of the final product together with the origin of components and their prices.

	Component	Origin	Value of non-originating component (PLN)	Value of originating component (PLN)
1	Steel	EU (Poland)	-	45
2	Compressor	EU	-	35
3	Plastics	USA	20	-
4	Copper	China	3	-
5	Gases	EU (Poland)	-	5
6	Glass	South Korea	5	-
7	Packaging	EU (Poland)	-	1
TOTAL			28	86

Table 2 shows the values of certain components in their original (invoiced) currency which was calculated into PLN according to exchange rates applicable at the beginning of 2008.

	Component	Value of component (in invoiced currency)	Currency invoiced	Exchange rate to PLN applicable on 1 January 2008	Value of originating component (PLN)
1	Steel	45	1 PLN	-	45
2	Compressor	9,68	1 EUR (euro)	3,6159	35
3	Plastics	7,96	1 USD (dollar)	2,5115	20
4	Copper	8,81	1 CNY (yuan renminbi)	0,3404	3
5	Gases	5	1 PLN	-	5
6	Glass	1869,16	100 KRW (won)	0,2675	5
7	Packaging	1	1 PLN	-	1

(Please note that the values presented in tables have been rounded for presentation purposes)

Table 3 contains an origin analysis showing that, according to the exchange rates applicable on 1 January 2008, the model product meets the origin criteria that confer preferential treatment on imports to the RSA under the EU-RSA agreement.

Total value of non-originating component (PLN)	Total value of originating component (PLN)	Ex-works (EXW) price of final product (PLN)	Origin rule (non-EU material value < 25% of EXW price)
28	86	120	MET (28 < 30)

(Please note that the values presented in tables have been rounded for presentation purposes)

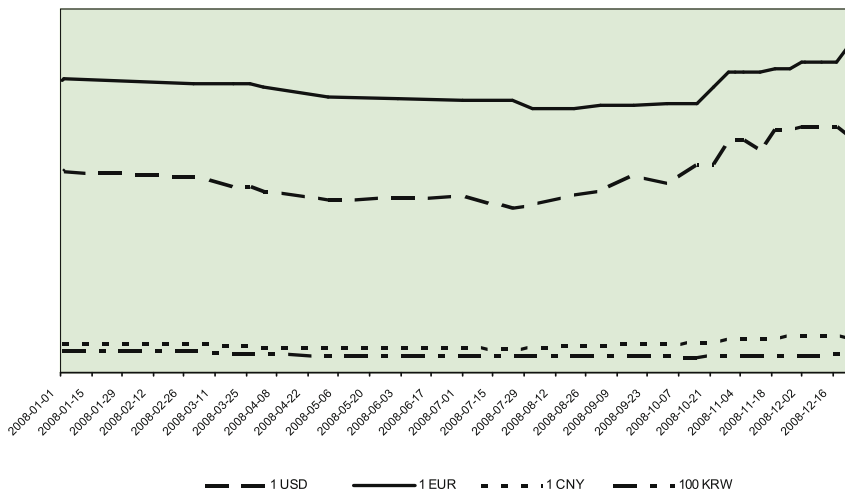
As the tables above show, on 1 January 2008 it was assumed that the total value of a non-originating component amounted to 28 PLN, while the origin rule provided for a threshold of 30 PLN (being 25 per cent of the ex-works price of the final product). However, the origin rule applied in the model only directly refers to the value of non-originating components. Therefore, fluctuations in the exchange rates of the currencies relating to the components (that is, USD, CNY and KRW) could have a significant impact on the product's ability to maintain EU origin consistently throughout 2008. Although the total value of the originating components is much higher and may also be subject to exchange rate fluctuations, these are unlikely to affect the origin to the same extent because firstly, most of the components are priced in PLN and secondly, the impact of the EUR exchange rate is indirect (that is, it manifests itself through changes in the ex-works price of the final product and, thereby, through changes to the threshold of the origin rule).

The initial relatively small difference between the total value of a non-originating component and the RoO threshold therefore justifies the hypothesis that such a situation can be susceptible to a fluctuating exchange rate and thus it is not possible to guarantee compliance with the origin rule consistently throughout 2008.

2.2 Exchange rates during 2008

In order to ascertain whether there is a risk that the preferential origin of a model product cannot be ensured throughout the period of analysis, Chart 1 shows the fluctuations in the exchange rates of selected currencies as determined by the National Bank of Poland during 2008.

Chart 1. Fluctuation of exchange rates of selected currencies to PLN during 2008



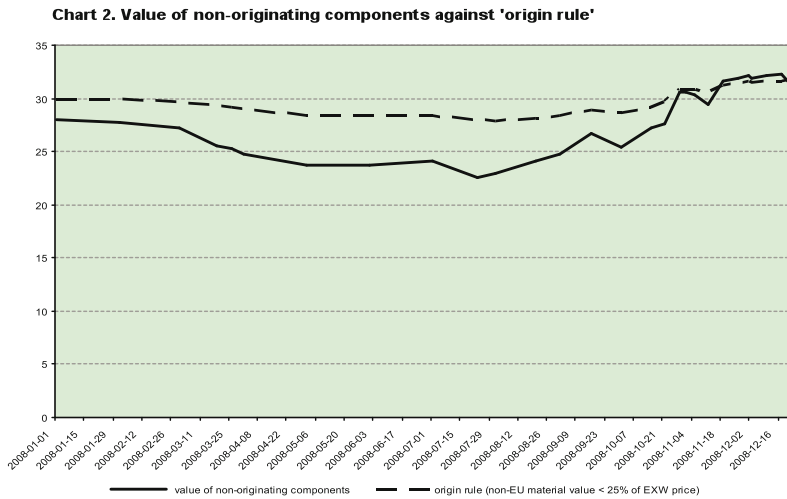
The chart shows that of the four currencies involved, USD and EUR fluctuated most during the period of analysis. For much of 2008, their value against PLN decreased, however, from mid-July (for USD) and November (for EUR), the exchange rate for PLN grew rapidly and irregularly. The exchange rate of CNY and KRW showed a much lower level of fluctuation during 2008, keeping a rather even keel throughout.

2.3 Results of the analysis

In order to assess the influence of fluctuating exchange rates on the origin of the model product subject to RoO (the 'manufacture in which the value of all the [non-originating]...materials used does not exceed

25 per cent of the ex-works price of the product’), it is necessary to calculate the value of originating and non-originating components as well as the ex-works price of the product for the period in question. The ex-works price of the product will then be used to assess the origin rule threshold for 2008 (25 per cent of the ex-works price). This will then enable us to calculate the periods for which the origin rule was not met.

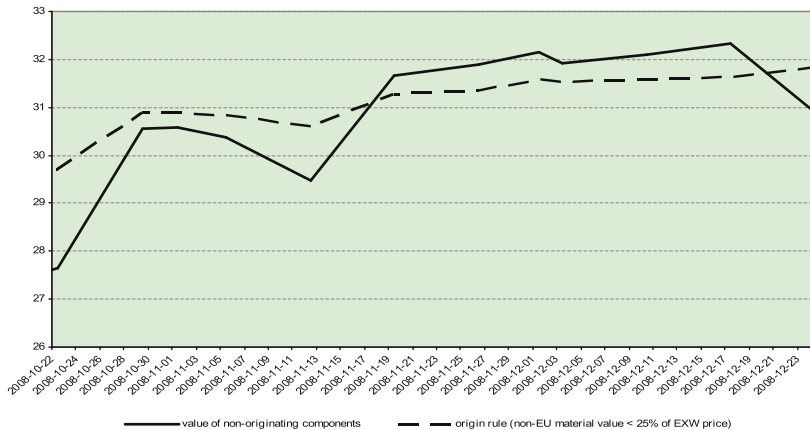
Chart 2 presents this calculation in graphic form. For the sake of clarity, the data used for calculations are presented in Appendix 1. Chart 2 only displays the value of non-originating products against the ‘origin rule’. This approach demonstrates the crucial importance of the whole calculation.



Notwithstanding the above, the most interesting period for our purposes is the last quarter of 2008, when the origin rule was breached due to changes in exchange rates. Table 4 presents the data and Chart 3 represents it graphically for this period.

Date	Value of non-originating components	Origin rule threshold (25% of EXW price)	Meeting origin rule
08-10-01	25,35513048	28,66262862	YES
08-10-15	27,16025292	29,11390923	YES
08-10-22	27,64810368	29,70559392	YES
08-10-29	30,56133568	30,87797192	YES
08-11-01	30,58750392	30,88451398	YES
08-11-05	30,36881220	30,82984105	YES
08-11-12	29,46723264	30,60444616	YES
08-11-19	31,66339664	31,28755516	NO
08-11-26	31,89774264	31,34614166	NO
08-12-01	32,15961328	31,59335132	NO
08-12-03	31,90914584	31,53073446	NO
08-12-10	32,09419268	31,57699617	NO
08-12-17	32,32409936	31,63447284	NO
08-12-24	30,88184236	31,85228859	YES

Chart 3. Value of non-originating components against 'origin rule' 4Q2008



The above calculation shows that, for the period between 19 November 2008 and 17 December 2008, the value of non-originating components exceeded the origin rule threshold. Therefore, for this particular period, the goods manufactured by the Polish producer did not satisfy the conditions to qualify as EU originating goods pursuant to the EU-RSA agreement.

At the same time, the model constructed in order to verify whether the exchange rate fluctuations have an impact on the origin of goods, confirms this widely recognised weakness of the value-added test. The results therefore vindicate the hypothesis underlying this paper.

Consequently, the analysis based on a simplified model of a product manufactured in Poland and exported to the RSA confirms (subject to a number of assumptions) that the EU-based entrepreneur may face the problem of unintentionally breaching the RoO. The question as to whether this would mean the entrepreneur would be committing customs fraud largely depends on whether an invoice declaration covering goods not meeting the origin rule has been issued and forwarded to the purchaser in the RSA. Nevertheless, the risk in this area should be considered as significant having regard to the assumptions of monthly invoicing.

3. Duties of a responsible exporter and attentive customs authorities

In the light of the above results of this model, it is important to examine the duties of the responsible exporter and customs authorities with regard to a temporary breach of the RoO owing to large-scale exchange rate fluctuations over a rather short period of time. The salient questions are whether this situation could happen in practice and, if so, what actions should be undertaken (i) by the EU-based approved exporter of a model product in order to avoid a breach and the accusation of commercial fraud and (ii) by customs authorities which are obliged by the provisions of the EU-RSA agreement to monitor the actions of the approved exporter.

3.1 Duties of a responsible exporter

As stipulated above, the model analysed in this paper was simplified in terms of both production process and components price. For ease of analysis, the product was composed of the same few components and purchased at fixed prices all the time. The manufacturing process itself and its costs were also fixed. This allowed us to ascertain how the single variable (that is, the exchange rate of currencies in which some components were purchased) affected the origin of the model's product.

Using the model presented above as a reference, special attention should be given to the period between the beginning of October and the end of November 2008. In this period there were rapid increases in the exchange rates of EUR, USD and CNY (thus causing the value of all components priced in a currency other than PLN to increase). Thereafter, the value of EUR grew constantly causing the value of the model product's originating components to increase. Although CNY subsequently remained at a rather stable level, the USD exchange rate increased further, levelling out at a higher rate in mid-November 2008. This trend had a crucial impact on the value of non-originating components. However, as the value of EUR to PLN did not grow at the same pace and value as the value of USD to PLN (the increase in the exchange rate of USD was higher than the increase in the exchange rate of EUR at the same time), the origin rule threshold (which depends on the ex-works value of the final product), was breached.

Although the increase in value of components commenced at around 1 August 2008 (until that time the value analysed was decreasing), the Polish manufacturer of the model product may have already recognised this trend by at least September 2008. A close observation of this trend and the overall economic situation on the world at that time would probably have encouraged the manufacturer to pay more attention to the impact of the exchange rate on the origin of manufactured products. However, the rapid changes which took place between the beginning of October and the end of November 2008 could not have been reasonably anticipated. At that time, the customs exchange rates used by the Polish manufacturer to define the value of non-originating components used to manufacture the model product had been amended by the National Bank of Poland eight times and normally the customs exchange rates change on a monthly basis. More importantly, the EU origin of the model product could not have been assigned only in the period from 19 November 2008 to 17 December 2008 (that is, within 12 days of November and 16 days of December 2008). Thereafter, it would have been possible to assign EU origin again for another week. Thus, assuming continuous production and shipments (and consequently the continuous filing of invoices including origin declarations at the end of each month), the origin requirements for model products manufactured from imported components up to 19 November 2008 were not met for these 12 days of November and 16 days of December 2008 only.

In the absence of advanced IT systems and attentive customs staff, there is a considerable risk of a customs offence being committed when assigning the correct value to each imported component and tracing the actual use of these components in the production process on a daily basis. The risk of non-compliance with certain RoO arises when some simplifications (which provide for an average monthly pricing of components in production, average monthly direct and indirect costs, etc.) are applied which, incidentally, is a normal practice of manufacturers because not all accounting systems calculate prices of manufactured products on a day-to-day basis.

This gives rise to the question of what action the manufacturer should take in response. The answer is rather simple: monitor the cost side of the production process very closely (start using advanced IT systems which trace goods and their prices on a daily basis, train customs staff, etc.) and, should daily analysis reveal that some products do not confer origin, suspend the issue of invoice declarations for the relevant production area. In other words, the EU-based manufacturer must tolerate a relatively high administrative burden in order to prevent a potential breach of RoO. Whether the benefits from the ability to sell EU-originating goods would outweigh the costs of maintaining such IT systems is a question beyond the scope of this paper.

3.2 Duties of attentive customs authorities

The results of the above analysis also require us to look at the duties of the customs authorities of both the importing and exporting countries.

Regarding the latter, the customs authority should pay greater attention to the origin declaration issued at a time of rapidly fluctuating exchange rates by means of more frequent audits (such as a *post ante* action

aimed at disclosing irregularities) and increased requirements in order to assure the origin of products by their manufacturer (for example, an *ex ante* action aimed at allowing only those exporters to issue invoice declarations who have the necessary means of ensuring compliance with RoO at all times).

On the other hand, the issue is much more difficult regarding the customs authorities of the importing country. How can they justify having a reasonable doubt about the origin of products imported to their territory when they are unaware of the product's composition and all other factors influencing origin? Obviously, their duties are harder, if not impossible, to fulfil. Having regard to the circumstances they face, there seems to be only one recommendation, namely to maintain close contact with the customs authority of the exporting country, on an informal basis, and request them to monitor approved exporters more closely during periods of economic turmoil that severely affect exchange rates.

4. Summary and conclusions

This paper has analysed the effect of exchange rate fluctuations on the origin of goods produced in the EU and exported to the RSA using a simplified model. Taking into consideration the RoO for the manufacture of refrigerators (that is, 'manufacture in which the value of all the [non-originating] materials used does not exceed 25 per cent of the ex-works price of the product'), a single model variable was selected as the exchange rate. The model was constructed in order to assess whether the EU origin declaration could be relied upon during an economic crisis that severely affected exchange rates.

The outcome of this analysis has proved the widely recognised weakness of the value-added test, namely, that it is susceptible to the impact of fluctuating exchange rates.

The paper has also provided insight into how easily a fraud can be committed at a time of economic turmoil, without any intention.

Besides that and arguably even more importantly, it has been shown that even a responsible exporter and attentive customs authority may not be able to prevent a commercial fraud being committed. Prevention is only possible using a thorough *ex post facto* analysis of origin criteria or a very advanced IT-based origin compliance tool.

The analysis has also shown that the exchange rate might be a crucial factor in ascertaining the origin of goods and that, in some cases, it could negatively influence the origin of the final product. Therefore, manufacturers producing goods that satisfy certain RoO which are thus eligible to be imported to a trade partner under preferential duty rates, as well as customs authorities should pay greater attention to the exchange rate. This is especially necessary at a time of economic crisis.

Appendix 1. Series of data					
date	value of non-originating components	value of originating components	EXW price	origin rule (non-EU material value < 25% of EXW price)	meeting origin rule
2008-01-01	27,990467	86,001912	119,992379	29,99809475	YES
2008-02-01	27,69124128	86,11904	119,8102813	29,95257032	YES
2008-03-01	27,18615952	85,691184	118,8773435	29,71933588	YES
2008-03-19	25,48904428	85,691184	117,1802283	29,29505707	YES
2008-03-26	25,23296936	85,691184	116,9241534	29,23103834	YES
2008-04-01	24,81329236	85,23816	116,0514524	29,01286309	YES
2008-05-01	23,69767	83,983632	113,681302	28,4203255	YES
2008-06-01	23,70889092	83,753248	113,4621389	28,36553473	YES
2008-07-01	24,10754988	83,68452	113,7920699	28,44801747	YES
2008-07-23	22,52043276	83,68452	112,2049528	28,05123819	YES
2008-08-01	22,99587568	82,559704	111,5555797	27,88889492	YES
2008-08-20	24,08629368	82,559704	112,6459977	28,16149942	YES
2008-09-01	24,73991956	83,024344	113,7642636	28,44106589	YES
2008-09-16	26,66049456	83,024344	115,6848386	28,92120964	YES
2008-10-01	25,35513048	83,295384	114,6505145	28,66262862	YES
2008-10-15	27,16025292	83,295384	116,4556369	29,11390923	YES
2008-10-22	27,64810368	85,174272	118,8223757	29,70559392	YES
2008-10-29	30,56133568	86,950552	123,5118877	30,87797192	YES
2008-11-01	30,58750392	86,950552	123,5380559	30,88451398	YES
2008-11-05	30,3688122	86,950552	123,3193642	30,82984105	YES
2008-11-12	29,46723264	86,950552	122,4177846	30,60444616	YES
2008-11-19	31,66339664	87,486824	125,1502206	31,28755516	NO
2008-11-26	31,89774264	87,486824	125,3845666	31,34614166	NO
2008-12-01	32,15961328	88,213792	126,3734053	31,59335132	NO
2008-12-03	31,90914584	88,213792	126,1229378	31,53073446	NO
2008-12-10	32,09419268	88,213792	126,3079847	31,57699617	NO
2008-12-17	32,32409936	88,213792	126,5378914	31,63447284	NO
2008-12-24	30,88184236	90,527312	127,4091544	31,85228859	YES

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Endnotes

- 1 Bourgeois 1994, p. 1.
- 2 A consideration of cumulation of origin is beyond the scope of this paper.
- 3 Naumann 2008.
- 4 Naumann 2008.
- 5 European Commission [1999], 21999A1204(02), OJ L 311, 04/12/1999, pp. 0003-0415.
- 6 See, for example, rules for textile wall coverings (HS 5905) or yams, sweet potatoes and similar edible parts of plants (HS 2001) or other navigational instruments and appliances (HS 9014).
- 7 See Vermulst, Waer & Bourgeois (eds) 1994, p. 101.
- 8 See Lyons 2001, pp. 201-202.
- 9 Poland is a member state of the EU, however not yet a member of the EU currency union (it did not apply EUR as its currency nor tie its currency with EUR).

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TRS AS A MEASUREMENT OF TRADE FACILITATION: THE EXPERIENCE OF CUSTOMS IN THE ASIA PACIFIC REGION

Shujie Zhang¹

Abstract

A Time Release Study (TRS), a systematic and standard way to measure the time taken to release cargo, can substantially help Customs, other governmental agencies and the private sector to measure effectiveness, identify bottlenecks and find possible solutions for improvement in clearance and logistics. The World Customs Organization (WCO) has promoted the TRS and concentrated efforts to develop guidelines and software to address the emerging trade facilitation agenda. In the Asia Pacific Region, a number of TRS programs have been, and will be, conducted both at national and regional level with capacity building support. Critical findings and significant lessons can be drawn from regional experience to show how to roll out and use the TRS effectively.

1. Introduction

The development of the Time Release Study (TRS) dates back to the early 1990s. In 1994, the World Customs Organization's (WCO) Permanent Technical Committee (PTC) adopted a study to measure the time required for the release of goods, based on similar initiatives undertaken by Japan and the United States. In 2001, the PTC reviewed and updated the study based on pilot projects in an effort to simplify its application. Subsequently, the 'Guide to Measure the Time Required for the Release of Goods' (TRS Guide) was developed and recommended to member administrations. In 2005, TRS software was jointly developed by the WCO and the World Bank.²

Intended for measurement of trade and transportation facilitation (TTF), TRS serves as a multipurpose tool for Customs, other government agencies (OGAs) and the private sector involved in the trade supply chain. As the TRS Guide defines it, TRS is a systematic and standardised way to measure the average time taken between the arrival and release of goods and can also be used at each step. It is a diagnostic tool, providing concrete baseline data for identifying any bottlenecks in the clearance process and logistics. It helps to evaluate the impact of reform or modernisation initiatives taken by the public and private sectors. It provides a mechanism to further improve national trade competitiveness by enhancing the national TTF. It is also a persuasive indicator to demonstrate progress made and further requirements to the budgetary authority and the donor community.

As the sole intergovernmental organisation competent in customs matters, the WCO endeavours, through its instruments and tools, to help Members enhance their effectiveness and efficiency in facilitating legitimate trade and safeguarding the security and safety of society. The WCO has been promoting TRS as a key tool in its trade facilitation package, using all available opportunities including international occasions both formal and informal. The audiences have included Customs and the trade community with the TRS message pitched at both policy and technical levels. Technical assistance is provided to

Members through the WCO Secretariat and regional structures such as the Regional Offices for Capacity Building (ROCB). In recent years, awareness of TRS has increased and the number of TRS projects has expanded significantly with the TTF agenda progressing both nationally and internationally, especially in World Trade Organization (WTO) trade facilitation negotiations.

The rationale behind TRS is a continuous improvement cycle; TRS is never a stand-alone activity. The imperatives to enhance TTF call for honest and accurate analysis of the clearance process. Conducting a TRS will identify the bottlenecks in clearance and assist in finding solutions for delays., and necessary measures can then be taken. In this cycle, the key is how to conduct a TRS. Drawing on the relevant experiences of customs administrations in the Asia Pacific Region, the following discussion focuses on how to apply and tailor the WCO TRS tools in a local context.

2. Regional rollout and capacity building

Under the WCO umbrella, the Asia Pacific Region comprises 32 members. In terms of development level and customs capacity, these members are diverse. In developed countries/regions like Australia, Japan, Korea, New Zealand, Singapore and Hong Kong, customs modernisation is well advanced and these countries could be regarded as amongst the leading economies. There are also large developing countries like China and India, and some less developed countries like Bhutan and Lao PDR, where customs capacity needs a deal of enhancement. Such regional disparity provides potential for improved trade facilitation through capacity building. In relation to the TRS, an appropriate approach would be targeted capacity building by more developed members or regional organisations such as the ROCB which would assist less developed regional members.

2.1 Phased approach

A TRS project usually spans several months, and a phased approach should be adopted to ensure smooth implementation and systematic application of the research findings. In relation to the conduct of a TRS, the TRS Guide covers only three stages: preparation (data collection and recording), data analysis and report. However, it is preferable to see TRS in a broader context. The 'Initiation' stage, that is, the proposal and decision to implement a TRS project, should be regarded as the first phase. Only if the decision to proceed with a TRS project has been taken do the other steps follow. Some experts propose that a fifth phase, 'Action', be added to the steps. In the TRS Guide, the preparation phase is critically important. Naturally, when conducting a TRS for the first time, the preparation stage is critical since much time and energy is needed to ensure that knowledge transfer and capacity building occur. From the perspective of project management, each phase is equally important as any omission of a minor step may undermine the whole project.

The parties involved in the TRS extend well beyond Customs. Close communication and cooperation among all the stakeholders such as the national government, Customs, OGAs, donors, and the private sector, are integral to smooth implementation. Clear project boundaries, objectives, and the responsibilities of each party need to be stipulated. As the focal point in border management and control with unique expertise in clearance procedures, Customs is usually recommended to lead and monitor the project. A TRS Working Group should be established, with responsibility for the overall project. In some countries, a Steering Committee at policy level or a TRS Reference Group involving the private sector may be set up to 'serve as a channel of engagement with the industry sectors and OGAs involved in the supply chain'.³ The following table shows the main activities and possible parties involved.

Table 1: Five Phases in TRS

Phase		Main activities	Stakeholders
1	Initiation	Prepare proposal to conduct a TRS Receive acceptance by the government Decide to conduct a TRS	Government Customs Donors WCO & ROCB Private sector OGAs
2	Preparation of the study	Establish a TRS Working Group ⁴ Conduct specific workshop (if necessary) Plan (scope, methodology, questionnaire) Hold pre-meetings Conduct test run	Customs Donors ROCB Private sector OGAs
3	Data collection and compilation	Collect data Input data (using WCO TRS software) Verify data	Working Groups Private sector ROCB
4	Data analysis and report	Analyse data (using WCO TRS software) Follow up interview/research (if necessary) Prepare final report with recommendations	Working Groups Private Sector Donors ROCB
5	Action for improvement	Distribute report and publicise findings Consider recommendations and initiate action for improvement in clearance	Government Customs & OGAs Donors Private sector Public

Source: Adapted from the WCO TRS Guide and Tadatsugu Matsudaira 2006.⁵

2.2 Regional situation of conducting TRS

Based on information available to ROCB, the rollout of TRS in the Asia Pacific Region is summarised in Table 2 below. Against the geographical scope of data collection, the projects can be categorised into two groups: national level and regional level. Except in Korea, all relevant customs administrations collect data by using a data collection form or questionnaire. This does not mean that all the data are captured manually. In practice, a combination of extracting data from existing computer systems and obtaining other necessary data through the questionnaire is used, with the extent of the use of electronic data depending on the technological context of the countries concerned and cooperation from stakeholders. Generally, the more electronic data used, the better. In this paper, the author treats such methodology as 'manual'. Use of the WCO TRS software is still in a pilot stage, although some countries like Japan and China have developed specific computer systems to record and analyse the data. It should be noted that, at this stage, in most countries, the target of the TRS is generally limited to import cargo.

The process of initiating a project varies from country to country. Regional blocs like the Asia-Pacific Economic Cooperation (APEC) and donors like the World Bank and the Asian Development Bank (ADB) may play a ‘catalyst’ role, but external requirements should complement internal commitment. Besides those conducted in Japan and Korea, regional TRS projects that have been conducted in recent years have been initial projects or pilot projects, which is consistent with the global picture of TRS application.

Table 2: Regional Rollout of TRS

Level	Countries/ Projects	Time	Method	Use of WCO TRS Software	First Time	Initiation	Support
Country Level	Australia	2007	Manual	No	Yes	APEC	Japan, Korea
	China	2006	Manual	No	Yes	APEC	ROCB
	Indonesia	2006	Manual	No	Yes	NA	JICA
	Japan	Since 1991	Manual	No	Periodical	Self	-
	Korea	Since 1997	Auto- matic	No	Periodical	Self	-
	Lao PDR	2008	Manual	Yes	Yes	World Bank	ROCB
	Philippines	2002	Manual	No	Yes	Self	JICA
	Malaysia	1995, 2007	Manual	Yes	No	Self	WCO
	Thailand	2006	Manual	No	Yes	Self	ROCB
Regional Level	GMS CBTA EWC TRS ⁶	2009	Manual	Yes	No ⁷	ADB	ROCB
	BIMP-EAGA TRS ⁸	2009	Manual	Yes	Yes	ADB	ROCB

At a national level, Japan and Korea provide two different models for the collection of data and their experience is significant for other regional members. As mentioned earlier, Japan conducted the first pilot TRS in 1991, and since 1993, the study has been conducted every two or three years with implementation being consistent with the TRS Guide. Up to now, nine studies have been conducted with the latest conducted in 2008. With strong support from all the relevant government ministries and the trade and transportation communities, following careful analysis of the survey results, Japan Customs introduced a series of modernisation initiatives, procedures and techniques such as computer-based risk management, an automatic clearance system such as Single Window and pre-arrival declaration, and more recently the Authorised Economic Operator (AEO) program. Japan Customs also works closely with OGAs and the private sector to facilitate procedures and update facilities. As a result, substantial improvement has been made: from 1991 to 2006, the average release time for sea cargo has been reduced from 7 days to 2.7, and for air cargo, from 2.2 days to 0.6 day. In total, there has been a reduction in nearly two-thirds of the clearance time, and statistics from the Japan Ministry of Finance show that 40 billion Japanese *yen* could be saved in one year. Japan’s case demonstrates that a TRS can yield substantial benefits both for the public and the private sectors if it is used effectively.

Korea has also followed the WCO’s principles of undertaking a TRS and, taking advantage of their strong expertise in ICT application, key elements of the TRS are automated. The current Client-orientated

Logistics Information System (CLIS) now provides reliable, fast and comprehensive information about clearance time and logistical status of goods (see Example 1 below). Embedding the TRS in current computer systems and running TRS automatically is clearly a model for other administrations.

Example 1: Client-orientated Logistics Information System in Korea Customs Service

Korea Customs Service (KCS) completed the EDI-based import cargo management system and import clearance system in 1997 and, utilising the processing time recorded in the systems, developed a method of calculating, at major logistics stages, the average processing time of all imported cargoes brought into Korea for a specific time.

In 2006, KCS updated the existing system into an independent, web-based TRS system, which enables automatic TRS measurement of all processes and scope on a real-time basis of average processing time, standard deviation and performance of individual logistics participants, and information sharing among stakeholders. KCS named the system 'Client-orientated Logistics Information System' (CLIS), highlighting its client-orientated function and automated, independent information system.

CLIS is differentiated from existing EDI-based TRS measurement systems in that first, its statistics are based on complete enumerations rather than sampling; second, all measurement scope and processes are done by an automated, independent system; and third, clients can get all related logistics information through the internet free of charge. In 2006, the government of Korea awarded CLIS the Presidential Prize as a best innovation practice.

Source: Takashi Matsumoto and Sang-Hyup Lee, 'Regional Best Practice TRS', ROCB, 2007.

The ROCB is also involved in two regional projects. In 2008, Mr Kunio Mikuriya, the current Secretary-General of the WCO, stressed that 'If the Time Release Study is implemented at the regional level using equivalent methods, it could offer a useful insight on the way to improve border procedures in a comparable way'.⁹ This is because the data will be collected and analysed from the perspective of an extended supply chain and control chain. In this regard it should also be noted that Regional TRS, especially along economic corridors, can be extended to all checkpoints along the corridor. For the Greater Mekong Subregion (GMS), Cross-border Transport Agreement (CBTA) East-West Corridor (EWC) TRS Survey project, ROCB, while consulting ADB and concerned countries such as Lao PDR, Thailand, and Vietnam, recommended the use of a regional approach under which the release time will combine time consumed both by export and import countries. This approach may be problematic, however, where there is a lack of consistency between the procedures on both sides of the frontier and a lack of consistency in the definitions of various components.

2.3 Role of capacity building

The existence of the WCO tools and instruments in itself does not necessarily ensure automatic adoption and wide application by Member administrations; in the case of the TRS, the WCO has been promoting the initiative for nearly 15 years. The number of Member administrations that have actually conducted a TRS is comparatively small considering its 174 Members, the reasons for which no doubt include a lack of capacity in the individual Member states. Generally, however, the situation in the Asia Pacific Region is reasonable, and can be partly attributed to the drivers discussed at the beginning of this paper, and partly to the promotion of the TRS and capacity building efforts within the region.

Capacity building can be delivered as a comprehensive package or as a specific element of technical assistance, with support being offered by bilateral partners like Australia as well as by international institutions. In the case of Lao PDR, the World Bank has been instrumental in providing such assistance, and for two of the regional TRS projects, the ADB has initiated the project and provided the funding.

As the regional arm of the WCO, the ROCB Asia Pacific was established in 2004 to enhance the effectiveness and efficiency of regional customs administrations. In the past five years, the ROCB has conducted various capacity building activities based on the needs and requests of members. As a rule of thumb, the ROCB focuses on knowledge transfer and skill building and promotes ownership by the recipient administrations. In relation to TRS, the ROCB aims to help members to build their expertise which is essential for conducting the necessary follow-up studies. It should be noted that ROCB support runs through all five phases and by promoting TRS in various forums, the ROCB is seeking to increase awareness and solicit requests for capacity building. In the preparation stage, for example, the ROCB is able to provide basic suggestions and conduct a dedicated TRS workshop in the recipient administration. During the data collection phase, the ROCB may dispatch experts to assist on site, and assistance with data analysis and report drafting can also be provided as the ROCB keeps ‘open-line’ communication. Then, the ROCB would provide recommendations on how to improve trade facilitation. In 2007, the ROCB developed a Regional Best Practice Compendium on TRS for members’ reference.

In addition to the various types of support that can be provided, the ROCB considers the centrepiece to be the TRS workshop which runs for two or three days. To maximise the benefits of the workshops, several considerations are necessary. First, the right persons need to be invited. Generally, all the representatives of the stakeholders (for example, Customs, OGAs, trade and transport sectors) are invited to attend and it is essential that all members of the TRS Working Group participate. Second, a logical and balanced program should be designed and implemented, which should include the opportunity for interactive sessions (see Table 3 below).

Table 3: Model design of a TRS Workshop

Contents	Objectives	Training Methods
Brief on the WCO TRS Guide and Regional Rollout	Learn background, principles, phases, tasks on TRS	Presentation
Application of the WCO TRS software	Learn how to use all the functions, such as creating a questionnaire, input data, data analysis, report generation, etc.	Presentation Simulation exercises
Regional best practices	Expand horizon Draw on lessons from other countries	Presentation
Mapping the flowchart of clearance process	Gain clear picture of each step in clearance process Prepare to draft questionnaire	Presentation Discussion
Decide scope and planning	Discuss thoroughly and decide the key aspects of TRS	Group discussion and panel session
Develop draft questionnaire	Discuss and agree on defining data elements Develop the questionnaire by using the WCO TRS software	Group discussion Panel session Practice
Field simulation	Simulate the actual data collection process Discuss and agree the logistical flow of the questionnaire Identify potential problems in actual conduct of the survey	Field study Discussion

Source: Shujie Zhang, drawing on ROCB past experience (2009).

3. Common findings, dilemmas and implications

1.1 Common findings

Although the results of a TRS vary from country to country, significant findings can be distilled. First, Customs may not necessarily represent a major impediment to cargo flow. On the contrary, Customs is very often found to be one of the more efficient agencies, although there are always opportunities for Customs to further modernise and collaborate more closely with OGAs and the private sector. Second, the entities and variables which are positive and negative on TTF are numerous and are usually intertwined and interdependent. Therefore, a holistic approach for correction and improvement should be adopted, and partnership and cooperation among all the key players along the trade supply chain is a pre-condition. Third, the private sector may be responsible for some delays. This may occur at various stages from arrival to declaration, and from release permission to physical removal. Problems of capacity and port management also require resolution. Fourth, regular conduct of a TRS or ongoing measurement of trade facilitation is recommended.

1.2 Concerned dilemmas

In actually conducting a TRS, some dilemmas emerge and it is important to clarify these issues.

Customs only vs whole process. TRS can be approached in two ways. The first is to cover only the customs procedures, and the second is to cover the whole process of clearance. The first appears to be simple, as complicated coordination with other stakeholders can be bypassed. However, it is recognised by experts and demonstrated from past experiences that it is better that a comprehensive TRS be conducted. The reasons are twofold: first, a comprehensive TRS will yield more useful findings, especially in helping to identify the bottlenecks in the procedures that are out of Customs' control. This is in line with the concept and practice of supply chain management. Second, coordination and communication among stakeholders during TRS will provide a sound basis for possible efforts to seek solutions and to take action to reform the process.

Looks easy vs actually difficult. In learning to conduct a TRS, a 'U-shape' learning curve is common in many countries. This is natural because many international instruments and tools are, in essence, not so complex and difficult. However, considerable efforts are needed to absorb and apply those instruments and tools in a local context. The TRS Guide provides comprehensive guidelines. In one administration, for example, a workshop was conducted, an overall plan formulated and a questionnaire drafted. Unfortunately, and for a variety of reasons, the study was postponed for one year, reflecting the fact that it was not so 'easy' to progress the project.

Standalone vs integral. A TRS project stands independently in terms of data collection and analyses. However, TRS should not be conducted for its own purposes. It is wasteful for such a comprehensive report to be produced without further actions being planned. TRS therefore represents one critical stage of a continuous improvement cycle.

Quantitative vs qualitative. In conducting a TRS, most of the data are quantitative, especially time data. Naturally, analysis will be conducted mainly on a quantitative basis, for example, calculating elapsed processing time. However, numbers are just numbers, and on their own they cannot tell the whole or true story. A qualitative probe is necessary, especially when seeking to identify the causes for delays. This can be done by including open questions in the TRS questionnaire and conducting follow-up contacts or interviews on 'outstanding' cases as is the practice in Japan.

Performance measurement or not? In collecting data, it is stressed that all the officers involved should be informed that the TRS is not intended as a measurement of performance. However, when the results are interpreted and/or used, they do relate to the overall performance of organisations. This is a dilemma and this author's view is that, for individual officers, we should not stress that the TRS is not intended to measure their personal performance to avoid intentionally or unintentionally distorting the data. Organisationally, a TRS should be treated as an index of performance.

Benchmarking tool or not? The TRS Guide emphasises that the 'TRS should not be considered as a competition between Members or as an effort to place a value judgment on the operations of an administration'. However, a customs administration is inclined to compare its performance with the TRS results of other countries. It is therefore advisable to leave it to Members to decide whether they would like to conduct a TRS as a benchmark tool. If such a decision is prevalent amongst Members, the WCO could consider providing a platform to share TRS findings.

The quicker, the better? It seems that for clearance times, the shorter, the better. However, it may not be reasonable to interpret survey findings in this way. First, we should never forget the tenet for border control: the balance of facilitation and control. Second, too much focus on 'speed' would incur undesired consequences. As observed in one country, competition to reduce clearance time among different customs houses has invited complaints from the private sector.

3.3 What makes a successful TRS?

The 'successful' story always follows a similar plot. Drawing on the 'happy' and 'painful' experiences of regional members, the following elements can be extracted to ensure a sound and helpful TRS project.

Political will and concrete commitment should be in place. It may be a cliché to highlight the importance of commitment for any initiative. This is true with a TRS. Since many stakeholders are outside Customs, high-level support is critical. In countries where Trade and Transportation Facilitation Committees (TTFC) have been established, it is recommended that the TTFC steer the TRS project. Necessary resources including personnel and finances should be readily available.

Buy-in of stakeholders should be obtained. The buy-in of stakeholders is needed in each phase, especially in collecting data and implementing measures for improvements. Such buy-in is critical to the success of any TRS project in the Asia Pacific Region.

Project management approach should be adopted. The ROCB observes that many TRS Working Group members may not have effective skills in project management and monitoring. In one administration, data was collected under difficult circumstances, the reason being that insufficient people were assigned to the task.

Defining types and components of clearance process is critical. Thorough discussions should be held to gain a clear picture of the different types of clearance and their components. This is critical to the design of the questionnaire and its subsequent analysis.

Principle of 3W & H should be followed. The biggest challenge for many developing countries in conducting a TRS may be how to collect honest, reliable data. Therefore, in designing the questionnaire and collecting data, the following questions should be clear for each data element: What does this data element mean? When should the data be collected? Who is responsible? By what method or means should the data be collected?

The results should be communicated properly and utilised wisely. It is a tragedy that, after long and painstaking efforts, a well-drafted report based on valid data and scientific analysis is only made available to limited audiences. The TRS Guide stresses that 'In the spirit of transparency and cooperation, the

results of the study should be made available to all participating and relevant parties to stimulate any necessary further action on their part⁷. Like any diagnostic study, the value lies in how to reform and improve administration by using the findings wisely and effectively.

In the latest WCO Train-the-Trainer Workshop on TRS,¹⁰ participants discussed the challenges in conducting a TRS. Their findings mirror the above points.

4. Conclusions

In times of financial turmoil and economic slowdown, the global international customs community has reiterated a firm stance on free, fast and secure trade.¹¹ A TRS can contribute to the continuous improvement of trade and transportation facilitation. The methodology devised and recommended by the WCO can provide sound guidance. The TRS project should be incorporated into the national trade and transport facilitation strategy and customs modernisation program. The findings should be used wisely and various reform measures should be implemented to reduce clearance time and cost. This will eventually lead to enhanced trade facilitation and rationalised border management. For many developing countries which have finished the diagnostic phase of the WCO Columbus Programme and are implementing action plans, a TRS will help review the impact of reform measures.

Since a TRS has been included as a proposal¹² to the WCO trade facilitation negotiations, more countries may consider TRS in their national TTF strategy. Capacity building is critical to apply WCO instruments and tools including TRS in a local context. ROCB, working closely with members, the WCO Secretariat and other partners, can provide targeted assistance.

Endnotes

- 1 The author values the comments made by Mr Rob Preece and Ms Sandra Caligari on an earlier draft of this article.
- 2 The WCO TRS software is an internet-based application for creating a database for WCO TRS projects. As a web-based service, Members can use the software free of charge to develop the questionnaire and analyse data in a more convenient manner. Members can access the software at <http://members.wcoomd.org/trs/index.asp>.
- 3 See *Time Release Study 2007*, Australian Customs and Border Protection Service, www.customs.gov.au/webdata/resources/files/time-release-study.pdf.
- 4 For the functions and responsibilities of the TRS Working Group, see the WCO TRS Guide.
- 5 See Tadatsugu Toni Matsudaira 2006, 'WCO Time Release Study Guide: an analytical tool for TF', Presentation at UNCTAD/UNECE Workshop, November, Geneva.
- 6 GMS: the Greater Mekong Subregion Program, mainly supported by the Asian Development Bank (ADB); CBTA: Agreement Between and Among the Governments of the Lao People's Democratic Republic, the Kingdom of Thailand, and the Socialist Republic of Viet Nam for Facilitation of Cross-border Transport of Goods and People; EWC: East-West Corridor Project under CBTA. For details, see www.adb.org/GMS/about.asp.
- 7 In 2005, the ADB conducted a small-scale TRS in Mukdahan-Savannakhet Check Points.
- 8 BIMP-EAGA: Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area, mainly supported by the ADB. For details, see www.bimp-eaga.org/.
- 9 See Kunio Mikuriya, Keynote Speech, International Forum on the Role of Customs Administrations on Promoting and Facilitating Trade among Silk Road Countries, October 2008, Turkey.
- 10 In July 2009, to help developing members to enhance capacity in conducting a TRS in their administrations, two sessions of Train-the-Trainer on TRS were conducted in the WCO Secretariat. The participants learned how to apply the WCO TRS tools including the TRS Guide and the TRS Software.
- 11 See WCO 2008, *Communiqué from the International Customs Community: the global financial crisis of 2008*, 60th Session of the WCO Policy Commission.
- 12 See WTO 2007, Proposal on Release Time of Goods, TN/TF/W/139/Rev.1, Negotiation Group on Trade Facilitation.

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THE IMPACT OF THE GLOBAL ECONOMIC CRISIS ON CUSTOMS

Prabodh Seth

Abstract

The world financial crisis which started in the United States (US) in July 2007, has already had a spill-over effect on the world economy turning it into a global, synchronised recession. The associated unprecedented collapse in world trade was due to a number of reasons including the fall in aggregate demand, increasing protectionist measures, and withdrawal of trade credits. The recession has concurrently adversely affected all tax revenues including taxes/duties collected by customs agencies. In response to the crisis, the World Customs Organization (WCO) has recommended a number of processes to reduce the negative effects of reduction in trade and to promote best practices in sustaining the global trading system. The impact of the crisis has been particularly severe on export-driven economies such as Mauritius. Beyond an Additional Stimulus Package, the Mauritius Customs Department has been developing and introducing various administrative measures aimed at facilitating trade and managing risk to mitigate the impact of the recession.

1. The global picture

The 'world financial crisis' which started in the United States (US) in July 2007, has already had a spill-over effect on the world economy turning it into a global, synchronised recession. The contraction of all types of demand brought about by tight financial conditions, falling wealth and greater uncertainty has led to an unprecedented collapse in world trade. Global trade volumes fell 14 per cent from December 2008 to February 2009. The projections for the full year 2009 offer little comfort: the World Trade Organization (WTO) has forecast a substantial fall in global export volumes.

What is especially alarming about the current global recession is that no-one can predict how prolonged or deep this recession is going to be. This is due to the following:

- All major regions of the world are experiencing economic decline at the same time.
- US consumers, who account for one-fifth of global consumption, are overburdened by debt and are likely to slash their consumption levels. Elsewhere, as in China, there is likely to be a reduction in demand because of a fall in the value of their assets.
- Huge losses have been incurred by banks, especially in the US and Europe.

If we are fortunate and the fiscal stimulus announced by various countries spurs new demand, we may come out of the recession in late 2009. However, many careful observers believe it is equally likely that the recession will last well into 2010 and that the recovery when it comes, will be weak.

2. Customs response to the crisis

As indicated earlier, world trade volumes have been falling for the first time in 25 years. This is due to several factors including a fall in aggregate demand, increasing protectionist pressures and withdrawal of trade credits. In response to this crisis, the World Customs Organization (WCO) has identified the following recommendations.

- **Trade facilitation.** Through simplified customs procedures and minimum physical inspection of cargo, Customs can reduce the cargo dwell time, thereby lowering business costs and thus facilitating trade.
- **Promotion of risk-management.** This is extremely important since better risk-management will lead Customs to focus on high-risk consignments. This would increase the effectiveness of customs administrations and facilitate trade.
- **Customs-to-Customs cooperation.** The exchange of information and intelligence would go a long way to detecting fraud and facilitating trade.
- **Customs-to-Business partnerships.** An important feature of this recommendation is the use of an Authorised Economic Operator (AEO) program in which traders deemed to be low-risk are granted certain benefits while enhancing the overall level of security.
- **Consultation with trade policy ministries.**
- **Coordinated border management (CBM).**
- **Deferred payment.** In order to assist traders facing severe cash shortages, the WCO has recommended deferred payment/post-release payment to assist businesses' cash-flow.
- **Flexibility of guarantee (security).**

To inspire confidence in the international trading system during the global economic crisis, the WCO and other relevant international organisations should monitor the trends in international trade and identify best practices in sustaining the global trading system. In addition, the WCO urges the G20 to promote trade facilitation measures consistent with international customs and other border agency standards, and customs modernisation and capacity building programs particularly by advanced economies and other international donor organisations.

3. The Mauritian case

The impact of the crisis has been particularly severe on export-driven economies like Mauritius, since the volume of world trade is expected to decline by 11 per cent – its sharpest fall in 80 years. There is also the mounting fear that many importing countries may resort to overt protectionism.

The statistics regarding imports into Mauritius reveal the fact that their level is dropping and, since this is inextricably linked with important tax/duty receipts like VAT at importation, and customs and import excise duties, the revenue collections are bound to be adversely affected by the global recession. During the period October-December 2008, the value of imports was Rs 35.4 million, representing a 3.32 per cent fall compared to the same period in 2007. For the quarter January-March 2009, imports amounted to Rs 28.6 million compared to Rs 30.8 million during the corresponding period of the preceding year, a fall of 6.98 per cent.

The 'Additional Stimulus Package' has included a host of measures relating to various taxes/duties in an attempt to restrain the haemorrhage. This is being complemented by various administrative measures implemented in the Customs Department that are aimed at facilitating trade and managing risk. These measures are discussed in the following section.

4. Measures to mitigate the impact of the recession

Some of the measures being undertaken by the Customs Department in Mauritius which may help in mitigating the negative impact of the recession are described below.

4.1 Measures already implemented at Customs

The immediate need is to facilitate trade while at the same time reinforce protection in the face of the innumerable threats both at international and national levels. To achieve these twin objectives of trade facilitation and better risk management, the Customs Department of the Mauritius Revenue Authority has already implemented a series of reforms; some of these are highlighted below.

- Launching the **Fast-Track cargo initiative** (Blue Channel) – The objective is to reward compliant importers with hassle-free and speedy customs clearances, very low inspection rates for their merchandise and on-premises physical examinations of consignments (if any). This conforms with the WCO Revised Kyoto Convention which advocates improved facilities for compliant importers.
- Installing **X-Ray scanners at the Port and Airport** – Two scanners have been installed at the New Container Terminal of Mauritius (NCTM) at Port Louis and Plaisance Airport Transport Services Ltd Cargo Terminal at the Sir Seewoosagur Ramgoolam International Airport. These scanners allow non-intrusive inspections of high risk containers which assist Customs to determine which containers warrant physical inspection, thereby enabling Customs to more efficiently and effectively detect excess, smuggled and prohibited goods, including drugs and firearms.
- Initiating **e-filing and e-payment of excise declarations** – The Customs Management System (CMS) has been enhanced recently to allow excise operators to submit paperless excise returns as well as use the system's e-payment facility.
- Introducing **excise stamps on Tobacco Products** – The tax stamps (also known as 'Band-Rolls') are designed to allow the Customs Department and consumers to detect smuggled and counterfeit cigarettes. The placement of these highly visible stamps under the cellophane wrapper of all cigarette packets became mandatory on 1 May 2009.
- Acceding to the **WCO Revised Kyoto Convention** – Mauritius became a Contracting Party to the Revised Kyoto Convention on 24 September 2008.
- Preparing a **Standard Operating Procedures (SOP) Manual** for stakeholders and officers – A comprehensive set of approximately 35 SOP manuals has already been completed and is now available on the Customs intranet. SOP manuals ensure transparency, minimise discretion and encourage voluntary compliance.
- Installing **CCTV cameras** at the Airport and Mauritius Container Terminal – Advanced Closed-Circuit Television (CCTV) camera systems are now operational at the Sir Seewoosagur Ramgoolam International Airport arrivals hall and the Plaisance Airport Transport Services Ltd Air Cargo Warehouse. Similarly, Mauritius Port Authority (MPA) is currently installing such a system at strategic locations including the customs cargo inspection shed at the New Container Terminal of Mauritius (NCTM), X-ray scanner complex and port exits.
- Implementing **WCO Advanced Tariff Ruling System** – As recommended by the WCO, the Customs Department has amended the Customs Act to enable implementation of this important trade facilitation measure to allow traders to obtain a classification ruling that will be binding on both Customs and the traders prior to arrival of the goods and for a stipulated period of time.
- Establishing a **K9 Dog Unit** for drug detection – In 2004, Customs launched the 'K9 Unit' (that is, a drug detecting dog unit) with the intention of detecting even minute amounts of illicit drugs hidden in baggage, cargo, vehicles, aircraft and vessels, parcels/letters, and on persons.

- Setting up the **Anti-Money Laundering Unit** – Customs has established an Anti-Money Laundering Unit to implement Section 131A of the Customs Act under which Customs may, on reasonable suspicion, require any person to make a written truthful disclosure of the amount of currency or bearer negotiable instruments in their possession, the origin of that currency or negotiable instrument and its intended use. If the customs officer believes that the disclosure made is false or misleading, and the funds may involve money laundering or the financing of terrorism, the officer will refer the matter to the Police.
- Implementing a second-hand motor vehicles database accessible to all stakeholders.
- Establishing an online link to the Passport and Immigration Office database for tracking of suspected passengers.
- Implementing one-stop-shop registration procedures centralised at Customs Head Office.

4.2 Projects in the pipeline

The projects in the pipeline include:

- Moving into the **New Customs House** – The long-awaited New Customs House is making steady progress and is expected to be fully operational by the end of 2009. This New Customs House will finally bring together under a single roof Customs Department offices presently in several different locations. It will create a professional and customer-orientated work environment which supports the quest of becoming a truly ‘world-class’ Customs Service.
- Setting up **Cargo Community System (CCS)** – This system which is being implemented with the technical expertise of a French firm, SOGET, will enable timely exchange of manifest data between various stakeholders and simplify, streamline and rationalise cargo logistic processes. Once the CCS is operational in Mauritius, Authorised Economic Operators (AEO) certified by Customs and recognised by European Union and US Customs would avail themselves of the benefits of expedited clearance of goods into these markets. This system will be beneficial to both importers and exporters. Changes in customs procedures will also be made to provide for the implementation of the Cargo Community System.
- Extending Fast Track cargo initiative (**Blue Channel**) to more compliant importers
- Extending **excise stamps to alcoholic products**
- Enhancing the existing **Customs Management System (CMS)**
- Promoting further **e-filing** of excise declarations
- Implementing a **Single Window Project** where clearance from other departments is required
- Setting up an **Advance Airport Passenger Tracking System**
- Implementing **e-payment of Customs duty**.

5. Conclusions

There is no doubt that the global recession has adversely affected all tax revenues including revenues from taxes/duties collected by the Customs Department. Not only has the recession had a negative impact on revenue collections, it has also had other undesirable effects, for instance, the shift of traders from air routes to sea routes for routing their cargo with a view to reducing costs. Such a step shifts the workload of the Customs Department asymmetrically towards the seaport area which may have adverse repercussions on cargo dwell-time. The present challenge before the Mauritius Customs Administration is, therefore, to checkmate the fall in customs collections through better risk management while at the same time endeavouring to take every possible measure to facilitate trade.

Prabodh Seth



Dr Prabodh Seth, as Director, Research, Policy and Planning, Mauritius Revenue Authority since March 2006, has contributed to the formulation and implementation of tax and trade policy in Mauritius. He joined the Indian Revenue Service in 1990 and during 2005, worked as Adviser, Ministry of Finance, Government of Mauritius. Prabodh holds a PhD in Economics from India and an MSc (Honours) degree in Public Economic Management and Finance from the UK.



Section 3

Special Report

At its June 2009 Council Sessions, the World Customs Organization adopted the following *Guidelines on WCO Recognition of University Customs Curricula* for assessment of university curricula against the PICARD Professional Standards.

GUIDELINES ON WCO RECOGNITION OF UNIVERSITY CUSTOMS CURRICULA

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1 Introduction

The PICARD programme, developed in partnership with the International Network of Customs Universities (INCU), has provided an opportunity to establish common development standards designed to maintain and raise the professional standing of Customs, particularly Customs senior and middle management. The principal objectives in developing the standards are to establish benchmarks:

- which can be developed into job profiles for the purposes of customs recruitment;
- against which the in-house training of member administrations may be measured; and
- against which academic development can be designed or procured.

The standards, which are contained in the WCO publication *Professional Standards* can and are being used by the academic world to develop educational programmes which provide professional qualifications for Customs staff, and others, to Bachelors and Masters levels.

These guidelines establish a process by which universities may apply for and attain WCO recognition of such academic programmes and those who graduate from the programmes.

2 Eligibility Criteria

The WCO does not intend to formally recognize a curriculum that meets only individual elements of the Professional Standards. Consequently, it will only entertain applications from universities that are able to demonstrate that their curricula substantially address the identified Standards at the Bachelors degree level or higher.

3 Form of Recognition

Where a university's curriculum is considered to meet the eligibility criteria, the WCO will:

- agree the university's Customs-specific programme(s); and
- agree that the subjects have been aligned to such programme(s).

When there is agreement of the WCO, the university may identify the programme as follows:

“This academic programme has been developed in conjunction with the World Customs Organization as meeting the requirements of its international standards for the Customs profession.”

Similarly, individual subjects or groups of subjects delivered as part of such programmes may be identified as follows:

“This subject [or unit or syllabus] forms a component of an academic programme that has been developed in conjunction with the World Customs Organization as meeting the requirements of its international standards for the Customs profession.”

To ensure appropriate WCO recognition of students who successfully complete such programmes and subjects, the above wording may be included on relevant certificates and testamurs.

4 Overview of the Application Process

A university wishing to receive WCO recognition of Customs-specific courses must lodge an application in accordance with Section 9 of these Guidelines. The completed application, together with all supporting documentation, must be submitted to:

PICARD Coordinator
Capacity Building Directorate
World Customs Organization
Rue du Marché 30
B-1210 Brussels
Belgium

Upon receipt of a properly completed application, the WCO will refer the application to the International Network of Customs Universities (INCU) Management Group which will establish an Academic Assessment Group composed exclusively of members of the PICARD Advisory Group to examine the application and recommend that the WCO:

- seek additional information;
- refuse the application;
- approve the application in part; or
- approve the application in full.

To ensure the veracity of claims, the INCU Management Group may determine that an on-site audit is required, in which case representatives of the INCU and WCO will jointly undertake the audit. In such cases the applicant will be notified of the area of focus prior to audit commencement.

The INCU advice to the WCO will include:

- certification that the WCO-approved Guidelines have been used in reaching the relevant recommendation;
- the names of the Academic Assessment Committee (made up of exclusively selected members of the PICARD Advisory Group) that was established to consider the particular application;
- a clear recommendation in relation to the application and, in the event that the recommendation is not unanimously supported by members of the Assessment Committee, details of any dissenting opinions of Committee members will be provided; and
- if appropriate, a recommended wording that should appear on the official WCO Certificate of Recognition.

Upon receipt of a recommendation from the INCU Management Group, the WCO will refer the application and the associated INCU recommendation to a group of WCO Member representatives who will provide the WCO with their independent view as to whether the curriculum meets the WCO criteria.

The WCO will then examine the application and accompanying recommendations, and make its decision.

5 Application Fee

A non-refundable processing fee of EUR 5,000 will apply to each application that is submitted under these guidelines. The fee is designed to deter frivolous applications, as well as to help offset costs associated with the assessment process, and is payable at the time of submission of the application.

6 Duration and Renewal of the WCO Certificate of Recognition

WCO Certificates of Recognition will be valid for a period of five years. To ensure ongoing compliance with the WCO Professional Standards, reviews of WCO approved university programmes will be conducted before the end of the five year period.

Should the university wish to apply for renewal of the Certificate of Recognition, it must do so at least six months prior to the expiry of the current Certificate. When applying for renewal, the university should provide the WCO with the same information as is required of any first-time application. A non-refundable processing fee of EUR 1,000 will apply to each application for renewal. In the event that an application for renewal is not received, the WCO Certificate of Recognition will lapse.

Any variations to the WCO Professional Standards will not affect the validity of Certificates of Recognition that are current at the time of the variation. However, renewal of the Certificate will be dependent upon the university amending its programme to take account of the revised Standards.

7 Review Procedures

In situations where the WCO decides:

- to refuse an application for WCO recognition of a particular programme;
- to refuse an amended application for WCO recognition of a particular programme;
- to revoke a WCO Certificate of Recognition; or
- not to renew a WCO Certificate of Recognition,

the WCO will advise the university of the reasons for the decision. If the university disagrees with the WCO's decision, it may seek to have the decision reviewed. In such cases, the WCO will appoint an independent committee to review the decision. Upon receipt of the committee's advice, the WCO will reassess its decision and advise the university of the outcome.

8 Provision for Programmes to be Recognized Prior to their Implementation

There will be situations where universities may seek recognition of their programmes prior to their implementation (e.g. where a university seeks recognition of a programme that is scheduled to commence in the following academic year).

In such situations the university may submit an application in the normal manner and, where the application meets all required criteria, the WCO will issue the university with a Certificate of pending commencement of the programme, provided that the university can demonstrate that the programme has received formal recognition from the relevant educational authorities within the university's jurisdiction.

Following commencement of the programme, the application may be subject to review to ensure that the criteria are met.

9 Application Requirements

Applications are to be submitted in the following format:

- A. Overview
- B. Relationship of Curriculum to WCO Standards
- C. Knowledge and Skill Transfer
- D. Annexes
 1. Key to University Programmes and Subjects
 2. Correlation between WCO Standards and University Subjects
 3. Correlation between University Subjects and WCO Standards

10 Liability

In no event shall the WCO be liable for any consequential, collateral, special or indirect damages (such as, without limitation, loss of revenue, loss of profit, loss of data, loss of goodwill, loss of savings, interruption of business or claims by third parties), even if the WCO has been advised of the possibility of such losses or damages. The Universities agree to indemnify and hold the WCO harmless against any damages or claims from customers/students or from third parties.

A. Overview

In this Section, the applicant should provide a broad overview of the Customs-specific academic programme(s) for which recognition is being sought, including the relevant academic award and the educational jurisdiction under which the award is granted.

B. Relationship of Curriculum to WCO Standards

In this Section, the applicant should address the correlation between the WCO Professional Standards and the university programme(s) for which recognition is being sought. Where the curriculum does not cover all elements of the Professional Standards, this should be identified and addressed.

C. Knowledge and Skill Transfer

In this Section, the applicant should outline the university's philosophy, educational practice and methods of determining knowledge and skill transfer to the student's workplace.

D. Annexes

The following annexes form an integral part of the application. An example of how to complete the annexes is shown at Subsection E.

- Annex 1: Key to University Programmes and Subjects
- Annex 2: Correlation between WCO Knowledge Requirements and University Subjects
- Annex 3: Correlation between University Subjects and WCO Standards

E. Example of Annex Completion

Annex 1: Key to University Programmes and Subjects

In this Annex, the applicant university must list all programmes for which it is seeking recognition, together with a list of all relevant subjects, for example:

Annex 1: Key to University Programmes and Subjects	
Qualification:	Master of International Customs Law Graduate Diploma in Customs Management Bachelor of Customs Studies ...etc.

<u>Subject No.</u>	<u>Subject Name</u>
00012	Customs Management 1
00013	Customs Management 2
00014	Customs Reform and Modernization
00015	Economics for Public Sector Managers
00016	GATT/WTO Law ...etc.

Annex 2: Correlation between WCO Standards and University Subjects

In this Annex, the applicant university must list those subjects that are relevant to particular knowledge requirements of the WCO Standards, for example:

Annex 2: Correlation between WCO Knowledge Requirements and University Subjects		
<u>A. Strategic Managers/Leaders</u>		
<u>Category</u>	<u>Knowledge Requirements</u>	<u>Relevant Subject Nos.</u>
1. National and international policy/politics	Ability to demonstrate a critical understanding of the government's overall economic policies and social direction, its international and regional obligations and priorities.	<i>List all subjects that are relevant to this knowledge requirement, e.g.</i>
	Identification of the key players at governmental and international level with influence on Customs policy and resources.	00034
	Creation of a proactive system of information gathering to enable constructive engagement with government/regional and international organizations.	00035
	Ability to identify and provide advice to government of international and regional developments.	00036
	International Customs Law.	
2. The role of Customs in government and interaction with other government departments	Understanding of the role of Customs in applying government policy to people and trade at the frontier and its basic management control and collection requirements.	00037
	Identification of the key government departments with frontiers, trade and taxation requirements either working through Customs or working alongside customs.	00038
	Establishment of effective consultancy networks and co-operative approaches to border management.	00039
	Knowledge of all the missions of Customs for itself and other administrations (public health, safety, etc.).	
...etc.		

Annex 2: Correlation between WCO Knowledge Requirements and University Subjects

B. Operational Managers/Leaders

<u>Category</u>	<u>Knowledge Requirements</u>	<u>Relevant Subject Nos.</u>
1. Interaction with other government departments	<p>Knowledge of the government policies and priorities which define the role of Customs in the area of command and the roles of other government departments within the command.</p> <p>Ability to evolve in its economic environment.</p> <p>Collaboration and co-ordination with other government departments.</p> <p>Understanding of the powers of other government departments and their relationship to Customs.</p>	<p>00056</p> <p>00057</p> <p>00058</p>
2. Know the role of Customs and its usual partners	<p>Knowledge of the customs economic environment.</p> <p>Ability to relay the policy defined at strategic level.</p>	<p>00059</p> <p>00060</p> <p>00061</p>
...etc.		

Annex 3: Correlation between University Subjects and WCO Standards

In this Annex, an applicant university must provide a comprehensive description of subject outlines and outcomes, and identify for each subject the correlating WCO knowledge, skill and behavioural/attitudinal attributes, for example:

Annex 3: Correlation between University Subjects and WCO Standards		
Subject	Outline	Outcomes
<p>Customs Management 1 (00012)</p>	<p>This unit introduces students to the policy and principles of customs administration and to international trends with an impact on Customs. These include social expectations, emerging technologies, and the global economy. The curriculum covers a detailed analysis of the role and responsibilities of customs authorities, including an historical perspective of the customs function, its evolving role in international trade and commerce, and the various international conventions and agreements which impact on customs policy. The unit also includes comparisons of a range of legislative and administrative procedures adopted by the customs authorities of leading economies.</p>	<p>At the completion of the unit students will be able to:</p> <ul style="list-style-type: none"> ▪ Identify the policy objectives of customs administrations ▪ Identify international influences that shape the customs policy agenda ▪ Compare the regulatory framework of a selected customs administration (potentially of the student's own administration) against established international standards ▪ Demonstrate an understanding of the evolution of the customs role in the present context ▪ Apply the knowledge gathered to assess the standing of the student's own administration ▪ Contribute to the national customs policy development and implementation
		<p>WCO Attributes</p> <p>Strategic Managers/Leaders</p> <p>National and international policy/politics Customs role in government and interaction with other government departments The Customs business Economic and fiscal Trade management Social protection International/regional Compliance management Aspects of judicial and legal systems relevant to Customs Strategic planning Policy development and implementation Financial management Human Resource/Capital management Risk management Information /Knowledge management</p> <p>The international supply chain Trade practices Principles of ethics, good governance & integrity</p> <p>Operational Managers/Leaders</p> <p>Interaction with other government departments Know the role of customs and its usual partners Knowledge of the administration Role and responsibilities of managers within Customs organization</p>
...etc.		



Section 4

Reference Material

GUIDELINES FOR CONTRIBUTORS

The *World Customs Journal* invites authors to submit papers that relate to all aspects of customs activity, for example, law, policy, economics, administration, information and communications technologies. The Journal has a multi-dimensional focus on customs issues and the following broad categories should be used as a guide.

Research and theory

The suggested length for articles about research and theory is approximately 5,000 words per article. Longer items will be accepted, however, publication of items of 10,000 or more words may be spread over more than one issue of the Journal.

Original research and theoretical papers submitted will be anonymously refereed. This process may result in delays in publication, especially where modifications to papers are suggested to the author/s by the referees. Authors submitting original items that relate to research and theory are asked to include the following details separately from the body of the article:

- title of the paper
- names, positions, organisations, and contact details of each author
- bionotes (no more than 50 words for each author) together with a recent photograph for possible publication in the Journal
- an abstract of no more than 100 words for papers up to 5,000 words, **or for longer papers**, a summary of up to 600 words depending on the length and complexity of the paper.

Please note that previously refereed papers will not be refereed by the *World Customs Journal*.

Practical applications, including case studies, issues and solutions

These items are generally between 2,000 and 5,000 words per article. Authors of these items are asked to include bionotes (no more than 50 words for each author) together with a recent photograph for possible publication in the Journal. The Editorial Board will review articles that relate to practical applications.

Reviews of books, publications, systems and practices

The suggested length is between 350 and 800 words per review. The Editorial Board will review these items submitted for publication.

Letters to the Editor

We invite Letters to the Editor that address items previously published in the Journal as well as topics related to all aspects of customs activity. Authors of letters are asked to include their name and address (or a pseudonym) for publication in the Journal. As well, authors are asked to provide full contact details so that, should the need arise, the Editor-in-Chief can contact them.

Authors of papers previously published should provide full citations of the publication/s in which their paper/s appeared. Where appropriate, authors are asked to obtain permission from the previous publishers to re-publish these items in the *World Customs Journal*, which will acknowledge these source/s. Copies of permissions obtained should accompany the article submitted for publication in the *World Customs Journal*.

Authors intending to offer their papers for publication elsewhere—in English and/or another language—are asked to advise the Editor-in-Chief of the names of those publications.

Where necessary and appropriate, and to ensure consistency in style, the editors will make any necessary changes in items submitted and accepted for publication, except where those items have been refereed and published elsewhere. Guidance on the editors' approach to style and referencing is available on the Journal's website.

All items should be submitted in Microsoft Word or RTF, as email attachments, to the Editor-in-Chief: editor@worldcustomsjournal.org

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Professor David Widdowson is Chief Executive Officer of the Centre for Customs & Excise Studies at the University of Canberra. He is President of the International Network of Customs Universities; a member of the WCO's PICARD Advisory Group, and a founding director of the Trusted Trade Alliance. David holds a PhD in Customs Management, and has over 30 years experience in his field of expertise, including 21 years with the Australian Customs Service. His research areas include trade facilitation, regulatory compliance management, risk management and supply chain security.

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Elaine Eccleston, BA, MA, developed the Information and Knowledge Management subjects taught at the University of Canberra. She was Manager, Information and Knowledge Management at the Australian Trade Commission, and has worked in these fields for the Australian Taxation Office, the Department of Foreign Affairs & Trade, and as Manager, Information & Records Management, BP Oil UK. She is Editor, at the Centre for Customs & Excise Studies, University of Canberra.

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Dr Christopher Dallimore studied Law and German at the University of Wales, Cardiff and obtained a Magister Legum at Trier University, Germany. His doctoral thesis was on the legal implications of supply chain security. For a number of years, Chris was Course Co-ordinator of the Master of Customs Administration postgraduate program at Münster University, Germany, and currently works for the Trusted Trade Alliance Europe GmbH. He is a lecturer at Münster University and translator of a number of legal texts.

