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BEYOND THE LOOKING GLASS: THE APPLICATION OF PUBLIC CHOICE THEORY TO U.S. COMMERCIAL COMMUNICATION SATELLITE EXPORT CONTROLS

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Abstract

Resolving the future challenges of space law requires not only an understanding of the law itself, but also the process through which law and policy is chosen. As legal scholars, we should complement our legal knowledge with public administration and public choice theory. This article undertakes a public choice case-study of U.S. commercial communication satellite export control law and policy, focusing on two particular regulatory choices: the 1999 Strom Thurmond Defense Act Satellite Export Control Amendment and the 1990 Tiananmen Square Sanctions boycott on Chinese launch services. This case study analyzes both the initial choice to implement these regulations and also the choice to maintain them in light of strong empirical evidence against their cost-benefit effectiveness. Specific models of public choice are demonstrated to explain and predict future U.S. export control regulatory decision. The findings of this case study are thereafter extrapolated to examine how public choice may operate in light of future challenges in outer space.

Article

In the current discourse there is a generally accepted conclusion that both the Strom Thurmond Defense Act of 1999¹ (aka. “STDA”) and particular prohibitions on Chinese commercial space launch services² (hereafter referred to collectively as the “China Launch Boycott”) impose economic

costs on the United States without a concomitant strategic benefit.³

¹ *Strom Thurmond Defense Act*, 22 U.S.C. §2778, P.L. 105-261 (1998) at §1511-1516.

² *Id.*; Also see §902 of the Foreign Relations Authorization Act, Fiscal Years 1990 and 1991 (P.L. 101-246; 22 U.S.C. 2151 note);

³ See Center for Strategic and International Studies (CSIS), Briefing of the Working Group on the Health of the U.S. Space Industrial Base and the Impact of Export Controls (February 2008) online: csis.org <http://csis.org/files/media/csis/pubs/021908_csis_spaceindustrytar_final.pdf>. See Benjamin Sutherland, “Why America is Lost in Space” (31 January 2009) online: newsweek.com <<http://www.newsweek.com/id/182544>>. See Ram Jakhu & Joseph Wilson, “The New United States Export Control Regime: Its Impact on the Communications Satellite Industry” (2000) 25 Ann. Air & Sp. L. 157. See P.J. Blount, “The ITAR Treaty and its Implications for U.S. Space Exploration Policy and the Commercial Space Industry” 73 J. Air

If these conclusions are accurate as to the effectiveness of these particular export trade controls, then why hasn't the United States reformed and/or revoked these mandates? Are these conclusions wrong? Or are these laws an example of a government failure?

In this article, these questions are examined through the lenses of public choice theory. The reason public choice has been selected is that public choice theory, when applied to these specific cases, provides realistic explanations as to the legislative process that resulted in the STDA and China Launch Boycott. It is recognized that public choice theory has limitations and is not the only theoretical lens through which to assess these legislative acts. Limitations to public choice theory include the tautological presumption of individual self-interest, assumptions concerning the level of information possessed by a representative individual, maximization strategies of individuals, and most importantly, the implicit inclusion of a metric of efficiency as the proper standard for which to judge a government action.⁴ But these limitations do not undermine the insights that are gained through the application of public choice theory for an

explanation of the *causality* of export control reform failure and for the identification of *additional values* that should be considered in addition to economic and strategic metrics.

Towards these ends, this article provides a basic overview of public choice theory and thereafter applies three particular theories to the case-study of Comsat export controls. Conclusions are reached as to the likelihood of U.S. export control reform. Thereafter, the findings of this article are extrapolated to determine how public choice may operate in light of future challenges in outer space.

Section 1: The STDA and the China Launch Boycott

It should be noted that readers unfamiliar with either the Strom Thurmond Defence Act (STDA) or legislation prohibiting the launch of U.S. satellites on Chinese launch vehicles may have difficulty in following this article. Due to length limitations on this article, an extensive jurisprudential history of these laws is not possible. However, in order to assist those unfamiliar with these laws, the following basic explanations have been provided.

STDA: The STDA is a U.S. federal law enacted in 1998 that, amongst other things, (1) mandates all U.S. dual-use satellite technologies listed under the Commerce Control List (CCL) (including commercial communication satellites) be transferred to the United States Munitions List (USML).⁵ The STDA also revokes Presidential authority on dual-use satellite technology list-determination, placing, subject to special exception, all satellite technologies within the USML ITAR regime.

China Launch Boycott: In the aftermath of the Tiananmen Square Incident

L. & Comm. 705 (2008) at 712. See Mike N. Gold, "Lost In Space: A Practitioner's First-Hand Perspective on Reforming the U.S.'s Obsolete, Arrogant, and Counterproductive export control regime for space-related systems and technologies" 34(1) *Journal of Space Law* 163 (2008).

⁴ See Vincent Ostrom and Elinor Ostrom, "Public Choice: A Different Approach to the Study of Public Administration" 31(2) *Public Administration Review* 203 (1971) at 205-206. See also, James M. Buchanan, "Public Choice: Politics without Romance" 19(3) *Policy* 13 (2003) at 16. See also, James M. Buchanan, "Politics without Romance: A Sketch of Positive Public Choice Theory and its Normative Implications" in, James M. Buchanan and Robert D. Tollison Eds., *The Theory of Public Choice – II*, (University of Michigan Press: 1984) at 11-23.

⁵ *Strom Thurmond Defense Act*, 22 U.S.C. §2778, P.L. 105-261 (1998) at §1511-1516.

(1989), Congress enacted legislation that laid trade sanctions against China, including a trade prohibition against Chinese commercial satellite launch services, subject to waiver on a case-by-case basis via a Presidential finding of “U.S. national interests.”⁶ This legislation was strengthened in 1998 by the STDA, in which the standard for waiver findings was elevated to “U.S. national security interests.”

Section 2: Overview of Public Choice Theory

Public choice theory is a field of political science that applies the theories and methods of economics to the analysis of political behavior⁷ and offers an understanding of the complex institutional interactions that go on within the political sector.⁸ Its academic origins developed from the study of economics and the need to understanding the mechanisms that guide resource allocation in the public sector of the economy.⁹

In the discourse of public choice theory and trade, a disjunction occurs between economic valuing and political

⁶ §902 of the Foreign Relations Authorization Act, Fiscal Years 1990 and 1991 (P.L. 101-246; 22 U.S.C. 2151 note).

⁷ William Shughart II, “Public Choice” in *The Concise Encyclopedia of Economics*, available online at <http://www.econlib.org/library/Enc/PublicChoice.html>.

⁸ See Ronald N. McKean, “The Unseen Hand in Government” 55(3) *The American Economic Review* 496 (1965). See also, James M. Buchanan, “Politics without Romance: A Sketch of Positive Public Choice Theory and its Normative Implications” in, James M. Buchanan and Robert D. Tollison Eds., *The Theory of Public Choice – II*, (University of Michigan Press: 1984) at 11-23.

⁹ Ronald N. McKean, “The Unseen Hand in Government” 55(3) *The American Economic Review* 496 (1965) a 496.

valuing.¹⁰ For economists, exports are good only so far as they make welfare-improving import possible. But for politicians, things are reversed and the basic rule of trade politics is that imports are bad because domestic producers face more pressure, but exports are good because domestic politicians tend to be sympathetic to domestic producers. As a result, the traditional model of public choice hypothesizes that the politics of trade is biased in favor of export producers of the good at issue because there is a “natural bias of public decision-making in favor of readily identified, easily organized, groups of people intensely interested in an issue.”¹¹ This bias arises because interest groups are able to concentrate their political influence to achieve beneficial regulatory outcomes. In other words, they can successfully lobby the government. According to this theory, regulation that provides gains to a broad, diffuse, unorganized populace while imposing losses to a select few producers is antithetical to the natural bias.

If one applies this theory of public choice to current U.S. Comsat export controls, the predication is that the satellite industrial base should have successfully lobbied Congress to repeal the Strom Thurmond Defense Act and China Launch Boycott. In fact, the satellite industry has attempted but has failed to repeal these controls and it is not from want of effort. The primary association for the satellite industry (The Satellite Industry Association (SIA)) has a very active lobbying effort on

¹⁰ See Ronald Cass & John Haring, “Domestic Regulation and International Trade: Where’s the Race? – Lesson from Telecommunications and Export Controls” in Daniel Kennedy & James Southwick, Eds., *The Political Economy of International Trade Law*, (Cambridge University Press, 2002) at 141.

¹¹ *Id.* at 142.

Capitol Hill to revoke the STDA.¹² As early as 2000, the satellite industry was publicly advocating for the revocation of the STDA.¹³ Since that time, the satellite industry, through the SIA and other public relations efforts, has successfully promoted public discourse that is in large part supported by or biased towards their views.¹⁴ But with ten years of concerted effort the SIA has failed to achieve regulatory reform.

The Launch Boycott is not such a clear cut case of asymmetric costs, as the boycott has provided an economic benefit to the U.S. domestic launch industry by acting as a trade protectionist measure. However, this benefit is now undermined by the return of China to the international launch market.

Given the active lobbying efforts of the satellite industry and the ever

¹² See Satellite Industry Association Website <<http://www.sia.org/index.html>>. See SIA Testimony before the House Foreign Affairs Committee – Subcommittee on Terrorism, Non-Proliferation and Trade, Hearing on Export Controls on Satellite Technology (April 2, 2009).

¹³ See Satellite Industry Association Press Release, “Rep. Berman and Rep. Rohrabacher introduce bill to strengthen competitiveness of U.S. satellite industry” (May 4th, 2001), available online at <<http://www.spaceref.com/news/viewpr.html?pid=4748>>.

¹⁴ I have read hundreds of articles on this subject and almost invariably they present a perspective favorable to the industry position of export control reform. For an example of the talking points promoted by the satellite industry, please see Aerospace Industry Association COMSAT talking points, available online at: <http://www.aia-aerospace.org/assets/talking_points_8_07_09_comsat_s.pdf>. See also Mike Gold, “Lost in Space: A practitioner’s First-Hand Perspective on Reforming the U.S.’s Obsolete, Arrogant, and Counterproductive Export Control Regime for Space-Related Systems and Technologies” 34(1) *Journal of Space Law* at 163 (2008). See also P.J. Blount, “The ITAR Treaty and its implications for U.S. space exploration policy” 73 *Journal of Air Law and Commerce* 705 (2008).

increasingly regulatory divergence with Europe, why has Congress failed to repeal and/or reform these legislative acts? Or are there other factors to consider?

Section 3: Application of Public Choice Theories

In the following section, the public choice Cost-Value, the Recalibrated Cost, and Inefficient Government theory are applied with the goal of gaining insight on this question.

Recalibrating Value and Cost Theory

According to the Recalibration-Cost Theory, “both the value and cost of export control might differ from what appears at first blush”¹⁵ and “the apparent misfit between [Comsat] export controls and public choice theory disappears upon examination.”¹⁶ A case-study of STDA and China Boycott controls reveals that four additional values [benefits] can be readily identified: denial, delay, cost-raising, and signaling, but that these additional values are undermined by European regulatory divergence and the development of Chinese indigenous technology.

Denial is the most obvious benefit of these Comsat export controls, China and other nations may be denied both Comsats for sale and launch. However the failure of the U.S. to achieve regulatory convergence with Europe means that the U.S. lacks the ability to continue to deny China and others access to Comsats of comparable technical sophistication for either sale or launch.¹⁷ As Cass & Haring point out, “On its face, these

¹⁵ Ronald Cass & John Haring at 143.

¹⁶ *Id.* at 143.

¹⁷ Ali Ahmadi, *U.S. Export Control Law Applicable to Commercial Telecommunication Satellite Technology Destined for China* (LL.M. Research Project, McGill University Institute of Air & Space Law, 2010).

instances seem to be all cost, no benefit government actions. Even for the most skeptical observers of government that is an implausible paradigm.”¹⁸

Delay seeks to “maintain some temporal advantage in access to the restricted good.”¹⁹ The U.S. controls against China have achieved this goal. From 1998 until 2010, no Western Comsats were launched from China.²⁰ Also, China has not purchased a sophisticated Western satellite with U.S. technology since 1998. However, this delaying tactic is not sustainable. Europe is now launching ITAR free Comsats on Chinese launch vehicles and selling China Comsats without U.S. origin technology.²¹ Likewise, China’s indigenous Comsat technology has improved significantly and China is now selling Comsat on the international market.²²

¹⁸ Ronald Cass & John Haringat 143.

¹⁹ *Id.* at 143.

²⁰ See Bruce Crumley, “China’s Takeoff in the Space Industry” *Time* (12 March 2009) online: time.com

<<http://www.time.com/time/world/article/0,8599,1881966,00.html>>. See also Andy Pasztor, “China to Launch for France’s Eutelsat” *Wall Street Journal* (25 February 2009) online: online.wsj.com <<http://online.wsj.com/article/SB123550142763361701.html>>.

²¹ See Joan Johnson-Freese, “The Emerging China-EU Partnership: A Geo-Technological Balancer” 22(1) *Space Policy* 12 (2006). See also, Rep. Rohrabacher Press Release, “Rohrabacher Condemns European Satellite Company’s use of Chinese Rockets Calls China “Weapons of Mass Destruction Proliferator”” (Washington D.C.: 25 February 2009), online: <<http://www.spaceref.com/news/viewpr.html?pid=27637>>.

²² See Xinhua News Agency, “Bolivia set to buy Chinese telecom satellites” *China Daily* (9 September 2009), online: Chinadaily.com <http://www.chinadaily.com.cn/china/2009-09/25/content_8736008.htm>.

Cost-raising is another benefit. Export control raises the costs of acquiring a good. “Restrictions on export are likely to do this to some degree even if they are only partially successful, in part for the same reason that trade theorists generally favor multilateral liberalization and oppose reciprocal trade agreements: unimpeded, trade will tend to take its most efficient route, while constraints that apply differently to different sources or destination for trade, even if they cause minimal distortion in production, will cause, trade to be diverted to second best channels.” For Comsats this is true, as costs are manifested within the licensing and monitoring system itself (e.g. time delays, licensing fees, uncertainty for re-export approval), outside of it (e.g. the commercial stigma of ITAR products), and Comsat trade has been diverted to second-best channels.

Export controls may possess political utility even if the other goals of control are not achieved. In this sense, export controls can serve as a political signal, letting “both domestic and foreign audiences know what [the exporting government] thinks of particular nations at particular times.”²³ Cass & Haring theorize that “signaling effect may be especially useful if it can be calibrated by the sort of goods in which trade is limited.”²⁴ Comsats fit well within this theory of calibration, in so much as Comsats are a particular high-technology aerospace associated product meant to signal to the Chinese and to other nations that ballistic missile and associated space technology proliferation is unfavorable.

Asymmetric Official Incentives Theory

The second hypothesis is that self-interested behavior of public officials, not serving broader public interests, produces a

²³ Ronald Cass & John Haring at 144.

²⁴ *Id.* at 144.

bias towards imposition of export regulation, even though the regulation imposes a real and serious cost.²⁵ This self-interest can derive from various sources: political constituents, concentrated harm to the individual deciding to regulate or not (e.g. risk of public scandal), etc.. The critical characteristic of this theory is that the public official is not serving the broader public interest.

The politics surrounding Comsat export controls do evidence some degree of self-interested behavior. Take for instance the boycott against launching U.S. Comsats from China. At the time of Tiananmen Square (July 4th, 1989), the H.W. Bush administration initially instituted a measured response (on July 5th, 1989), including the prohibition of exporting weapons for sale, but not the prohibition of exporting Comsats for launch.²⁶

President Bush called for “reasoned, careful action that takes into account both our long-term interests and recognition of complex internal situation in China.”²⁷ As

²⁵ *Id.* at 145.

²⁶ On June 5, 1989, President H.W. Bush announced the following U.S. actions: Suspension of all government-to-government sales and commercial exports of weapons; Suspension of visits between U.S. and Chinese military leaders; Sympathetic review of requests by Chinese students in the United States to extend their stay; Offer of humanitarian and medical assistance through the Red Cross to those injured during the assault; and- Review of other aspects of our bilateral relationship as events in China continue to unfold. “The President’s News Conference: Suppression of Student Demonstrations in China,” 25 *Weekly Comp. Pres. Doc* 839, 12 June 1989, cited in Col. Gerard A. St.Amand, “Schizophrenic Sanctioning: A Failed U.S. Policy Toward China” (National Defense University Report, 1994) online: < <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA444566&Location=U2&doc=GetTRDoc.pdf>>.

²⁷ Press Release, “The President’s News Conference: Suppression of Student Demonstrations in China,” 25 *Weekly Comp. Pres. Doc* 839 (12 June 1989).

events continued to unfold in China, public opinion in the United States demanded a stronger response. The Bush administration instituted a second series of sanctions (on July 20th, 1989), suspending high-level meetings and postponing Chinese loan application at the World Bank, but they did not include export prohibition for Comsat launches.²⁸ Congress was not satisfied and demanded that the Bush Administration “speak out more forcefully or impose tougher economic punishment,” but the Bush Administration did not.²⁹ The Administration calculated that while the current political climate in the U.S. called for harsher measures, U.S. response should be “calibrated to be harsh enough to undercut pressure from Congress for additional sanctions but not too harsh as to aggravate Beijing into a deep breach in the Chinese-American relationship.”³⁰ Congress then used the Foreign Relations Authorization Act of 1990-1991 to impose additional sanctions, including the boycott of U.S. satellites for launch by China.³¹ It is certainly credible to conclude that public opinion in the United States was a consideration in the decision by Congress to boycott U.S. satellites. Such consideration would have included the self-interests of individual politicians to support sanctions

²⁸ Col. Gerard A. St.Amand, “Schizophrenic Sanctioning: A Failed U.S. Policy Toward China” (National Defense University Report, 1994) at 4, online: < <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA444566&Location=U2&doc=GetTRDoc.pdf>>.

²⁹ David Hoffinan, “China Executions Push Bush to Focus on Future,” *Washington Post* (25 June 1989) at A25.

³⁰ Thomas L. Friedman, “U.S. Suspends High-Level Links To China as Crackdown Goes On,” *New York Times* (21 June 1989) at A8.

³¹ See §902 of the Foreign Relations Authorization Act, Fiscal Years 1990 and 1991 (P.L. 101-246; 22 U.S.C. 2151 note).

against China commensurate with the public opinion of their electoral constituents.

The decision to enact the Strom Thurmond Defense Act Satellite Amendments of 1998 (mandating Comsats to the USML and increasing the standard for Comsat launch export under the Tiananmen Square Sanctions from “national interest” to “national security interest”) were also enacted at a time of political controversy. At that time, President Clinton was in the midst of a political controversy known as “Chinagate,” in which Justice Department uncovered evidence that representatives of the Chinese government sought to direct political contributions from foreign sources to the Democratic National Committee (DNC) during the President campaign of 1996.³² One aspect of the investigation involved China Aerospace Science and Technology (CASC), whose commercial business includes launching Comsats. Johnny Chung, a large donor to the DNC who was eventually convicted of several felonies, testified under oath to the U.S. House Committee investigating him that he was given several hundred thousand dollars by way of an executive of CASC and told to donate it to Clinton’s re-election campaign fund.³³ The Republican controlled Congress linked the alleged donations to the issue of national security and Comsat export controls and this linkage served as one justification for the STDA Amendment. It is reasonable to conclude that political self-interest on part of the Republican Congress played some role in this decision.

Political self-interest can explain, to some degree, the initial decisions to impose

³² Bob Woodard and Brian Duffy, “Chinese Embassy Role In Contributions Probed”, *Washington Post* (13 February 1997) at A01.

³³ David Johnston, “Committee Told Of Beijing Cash For Democrats”, *New York Times* (12 May 1999) at A21.

more stringent export controls, but does it explain the failure to achieve reform and/or repeal? Are there self-interests against reforming the current controls? Let us first examine the launch boycott associated with the Tiananmen Square incident. There are several political self-interests against revoking these sanctions, almost invariable associated with public perception of China as a strategic competitor.³⁴ For example, revoking the launch boycott could be viewed as politically “weak” on national security and there is the risk of risk of public scandal. Consider that China in 2008 successfully tested an anti-satellite kinetic kill vehicle that caused serious international contestation, the legality of which is subject to controversy.³⁵ If Congressional members support a lifting of the launch sanctions, they would be open to political attack (whether or not grounded in fact) that lifting of the boycott has assisted China in developing its military space and ballistic missile capability. Also, the U.S. domestic launch industry has an interest in maintaining the boycott – and specific Congressional members may be biased towards this constituency.³⁶ Another constituency that may be able to influence individual Congressional self-interest is the U.S.-Taiwan lobby, traditionally a power

³⁴ See Ester Pan, “The Scope of China’s Military Threat” (Council on Foreign Relations: 2 June 2006), available online at <http://www.cfr.org/publication/10824/>>. See also, “Annual Report to Congress: Military Power of the People’s Republic of China” (2006)< <http://www.dod.gov/pubs/china.html>>.

³⁵ See Michael Mineiro, “FY-1C and USA-197 ASAT Intercepts: An Assessment of Legal Obligations under Article 9 of the Outer Space Treaty” 34(2) *Journal of Space Law* 321 (2008).

³⁶ See also Peter Van Fenema, *The International Trade in Launch Services*, (Leiden Faculty of Law: 1999) at 183 -240.

political force.³⁷ Combined, these political self-interests provide support to the theory that asymmetric incentives contribute, at least to some extent, to the continuation of the China launch services boycott.

The evidence is less compelling with regards to the Strom Thurmond Defense Act (STDA) mandate for all Comsats to be listed on the USML ITAR. This is because neither the political risk of a “public scandal,” nor the political self-interests identified *supra* are strongly associated with reform. Repealing the STDA mandate could be achieved as easily as simply returning Presidential discretion to the process of determining whether or not Comsat technologies should be included on the USML or the CCL. As a matter of fact, several legislative proposals, offered as early as the year two-thousand (2000), have proposed this simple legislative reform.³⁸

These are not radical proposals. They only seek to grant the Executive the same discretionary authority for list determination that exists for all other items. The passage of this reform does not expose Congress to significant political risk because granting Executive authority for list determination does not necessarily mean Comsats will be taken off the USML. Instead, it passes the decision, and the political risk, onto the Executive.

Since the enactment of the STDA in 1998, Congress and the Executive have been controlled concurrently by both parties, but still no reform has been instituted. It

³⁷ See Peter H. Koehn & Xiao-Huang Yin, *The Expanding Roles of Chinese Americans in Foreign Relations* (East Gate Publishing, New York: 2002).

³⁸ See *Satellite Exports with Security Act of 2000* (Introduced by Rep. Sam Gejdenson (D-CT) 5/10/2000). See also U.S. House Resolution 2410, Section 826 (2009) (Introduced by Rep. Howard Berman (D-CA) on 5/14/2009; Referred to Senate Committee on 6/22/2009).

therefore seems plausible to conclude that, at least with regards to the STDA, because there is little political risk for instituting STDA reform, the recalibrated cost theory better describes the reality of Comsat export control public choice as compared to the asymmetric official interest theory.

Inefficient Government Theory

While the Recalibration Theory provides some insight with regards to the initial decisions to boycott Chinese launch services and to list Comsats on the USML, it fails to fully explain why reform has not been achieved since that time. In this sense, the hypothesis that alternative values are derived from these regulatory decisions has validity, but it fails to fully acknowledge that the United States is experiencing a diminished return on investment which should trigger a public policy response.

This diminishing return exists because while the U.S. has achieved some value from denial, delay, cost-adjusting, and signaling, the value of these objectives is being reduced by changes in the real world. As discussed *supra*, Europe has now developed ITAR free Comsat technologies, directly competing with the United States and undercutting U.S. Comsat export controls. Also, China has developed indigenous Comsat technologies to supplant the U.S. embargo. As a result, the benefit received from these Comsat regulatory decisions are diminishing even as the costs associated with ITAR and the China boycott continue. Since this is the factual case, the Recalibration Theory fails to fully explain why reform of these regulatory standards has not yet been achieved.

The Asymmetric Incentive Theory explains, in part, why reform has not yet been achieved. With regards to repealing the China launch boycott, several domestic political constituents have been identified that provide a countering self-interest for

individual public officials. But the Asymmetric Incentive Theory fails to explain why legislative reform of the mandatory USML listing has not been achieved. There are no strong domestic constituent interests opposed to returning authority to the Executive to determine whether Comsat should be listed on the USML or CCL. There is also very little risk that an individual Congressman would face the risk of a public scandal, as the ultimate decisions to remove a Comsat from the USML would be within the Executive.

It is therefore a logical conclusion that another explanation is required to explain the failure of Comsat export control reform. It is the opinion of this author that a theory of inefficient government is an appropriate explanation to resolve this conundrum. The failures of reform efforts are not only because the hidden values associated with these controls do not justify continuation; nor is it only because the asymmetric self interests of individual Congressman justify continuation. The most logical explanation is that reform is justified, but has not been achieved because of inefficiencies in the operation of the U.S. legislative system. Quite literally, Congress, as a collective, hasn't found the time and energy to pass needed reform legislation.

One can hypothesize many reasons why Congress has been inefficient with regards to U.S. Comsat export controls. First and foremost, it may be an issue of relative importance. While the U.S. Comsat industry is a multi-billion dollar industry, the U.S. economy is a multi-trillion dollar economy and part-for-parcel Comsats just aren't that important. Also, other legislative initiatives may take priority for the very reasons theorized above, Cost-Value and Asymmetric Incentives. For example, for reasons associated with both Cost-Value and Asymmetric Incentives, healthcare reform and the economic recession are the major

legislative concerns for the 2009-2010 Congress, while U.S. Comsat export controls are not on the front burner.

Absent a concerted effort by the Executive, current U.S. Comsat controls will continue. Only when costs of inaction become too large for Congress to ignore, will Congressional reform be instituted. In this sense, one can theorize that for smaller regulatory issues Congress generally only responds once a situation has reached a level of importance that justifies the expenditure of Congressional time, energy, and political capital to resolve. In parlance, it can be said that Congress is reactive, not proactive, in particular when dealing with more nuisanced and/or relatively less important regulatory decisions. Normally this inefficiency is *not* an issue for export control regulations, as the Executive has been granted a fair amount of discretion on list item and license determination. The problem with U.S. Comsat export controls is that Congress has removed this authority from the Executive. As a result, the comparatively more efficient Executive bureaucratic decision making procedure is not available. Instead, Congress must act if Comsats are going to be removed from the USML or the boycott is to be lifted on Chinese launch services.

Section 4: Assessing the Future of Reform Efforts

These findings reveal that there are cost and benefit pressures that need to be considered in addition to the economic-strategic effectiveness of particular export trade controls. Specifically, there are three other public benefits that should be factored in: Delay, Cost-Raising, and Signaling.

However, even with the inclusion of these additional benefits, the continuation of the STDA and China Launch Boycott is suspect due to a deterioration of realized benefits (e.g. a diminishing return) in light of increasing negative economic pact.

A strong case can be made that the failure to revoke the STDA mandate is a government failure, rooted in a combination of asymmetric political incentive and government inefficiency. Indeed, the aforementioned analysis revealed that, in large part, it is structural inefficiencies within the Congressional legislative structure of the United States, magnified by the removal of export control regulatory discretion from the Executive, which is the most likely explanation for why the STDA mandate has yet to be revoked.

The continuation of the China Launch Boycott raises a different set of policy concerns because of sensitivity in the United States regarding China as a strategic outer space competitor. This sensitivity requires a recalibration of cost-benefit in favor of caution on part of the U.S. Congress due to the risk of a public scandal in which Congressman in favor of boycott removal are critiqued as “weak on national security” and/or “pro-China.” A re-conceptualization of the U.S.-China outer space strategic relationship is necessary before sufficient political support for revocation of the launch boycott will manifest.

Section 5: How Public Choice May Operate in Light of Future Challenges in Outer Space

Outer space is an environment that requires collective international cooperation and coordination in order to ensure continued benefit for humanity. States, like any legal personality, require rules to guide conduct, delimitating acceptable and unacceptable behavior and the consequences of violation. The political processes required to establish international norms, while distinct from domestic political systems, still maintain the continuity of human beings. Public choice theory can therefore be applied to assist in modeling the process of norm creation and enforcement,

internationally and nationally, with regards to particular future challenges in outer space.

Practitioners and scholars endeavoring to resolve present and future challenges may benefit significantly from public-choice modeling of relevant political actors. If one accepts the proposition that a more accurate understanding of decision making processes will result in better crafted law and policy, then any modeling theory that brings one closer to this goal, including public choice theory, is a benefit.