

## Note

### GATS Regulation for Launch Services: Resolving the United States-India Conflict

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A long time ago, when only the Soviet Union and the United States operated in outer space, launch services were far too limited to be a concern for international trade.<sup>1</sup> The militarily-focused space programs prevented any commercialization.<sup>2</sup> However, the growth of telecommunications changed the picture.<sup>3</sup> Upon venturing into the final frontier, mankind created a space industry worth hundreds of billions of dollars.<sup>4</sup>

The demand for telecommunications—television, telephone, radio, and internet<sup>5</sup>—motivated other countries to start launching satellites into orbit.<sup>6</sup> Concomitantly, companies

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1. Stephan Hobe, *The Impact of New Developments on International Space Law (New Actors, Commercialisation, Privatisation, Increase in the Number of “Space-faring Nations”)*, 15 UNIFORM L. REV. 869, 869–70 (2010).

2. *Id.* (“Space activities were strictly government-led, with a strong military foundation, both in what was then the Soviet Union and the United States of America . . .”).

3. *See id.* at 872 (“[T]elecommunications is by far the most lucrative space application.”).

4. Fed. Aviation Admin. Office of Comm. Space Transp., *Ann. Compendium of Comm. Space Transp.: 2016*, at 1 (2016), [https://www.faa.gov/about/office\\_org/headquarters\\_offices/ast/media/2016\\_Compendium.pdf](https://www.faa.gov/about/office_org/headquarters_offices/ast/media/2016_Compendium.pdf) [hereinafter FAAOCST] (“The size of the global space industry . . . is estimated to be about \$324 billion.”).

5. *Telecommunications Satellites*, EUROPEAN SPACE AGENCY, [http://www.esa.int/Our\\_Activities/Telecommunications\\_Integrated\\_Applications/Telecommunications\\_satellites](http://www.esa.int/Our_Activities/Telecommunications_Integrated_Applications/Telecommunications_satellites) (last updated Dec. 10, 2012) (explaining the various services of telecommunications); *What is the Telecommunications Sector?*, INVESTOPEdia (July 8, 2015, 10:11 AM EDT), <http://www.investopedia.com/ask/answers/070815/what-telecommunications-sector.asp>.

6. *See, e.g.*, Elizabeth Howell, *Arianespace: Satellite Launch Company*, SPACE.COM (Apr. 11, 2017, 3:26 PM ET), <http://www.space.com/36332-arianespace.html> (explaining that Arianespace was created to offer

around the world involved in space activities have enjoyed great success.<sup>7</sup>

In the United States, for example, small satellite (“smallsat”) companies are booming.<sup>8</sup> However, there is not enough domestic launching infrastructure to meet their demand.<sup>9</sup> Currently, smallsats can only reach orbit if they hitch a ride with larger payloads.<sup>10</sup> Smallsat companies strongly prefer to be the primary payload so they can set their own launch dates.<sup>11</sup>

India owns and operates the world’s most coveted smallsat launcher, the Polar Satellite Launch Vehicle (PSLV).<sup>12</sup> The United States is willing to let its smallsat companies freely launch on the PSLV so long as India signs the Commercial Space

telecommunications services and has shareholders from multiple European countries); *Genesis*, INDIAN SPACE RESEARCH ORG., <http://www.isro.gov.in/about-isro/genesis> (last visited May 27, 2017) (explaining that I.S.R.O.’s development focused on telecommunications).

7. Org. for Econ. Co-operation and Dev., *The Space Economy at a Glance 2014: Highlights*, at 4 (2014), <http://www.oecd.org/sti/futures/space-economy-at-a-glance-2014-highlights.pdf> [hereinafter OECD].

8. Peter B. de Selding, *U.S. Launch Companies Lobby to Maintain Ban on Indian Rockets*, SPACENEWS.COM (Mar. 29, 2016), <http://spacenews.com/u-s-space-transport-companies-lobby-to-maintain-ban-on-use-of-indian-rockets/> (“The U.S. small satellite industry has taken off in recent years, with several companies moving quickly from aspiration to execution.”).

9. Aditya Madanapalle, *Isro PSLV-C37 Mission: The US Private Sector Is Threatened by Cheap Indian Spaceflight*, FIRSTPOST (Feb. 10, 2017 10:27 IST), <http://tech.firstpost.com/news-analysis/isro-pslv-c37-mission-the-us-private-sector-is-threatened-by-cheap-indian-spaceflight-361706.html> (“US industries make a steady stream of satellites, but they do not have enough launch vehicles to place all of them to orbit.”).

10. See Selding, *supra* note 8 (“[Launch service] companies have said options are limited for satellites whose size means they can never order, on their own, a full U.S. launch vehicle in today’s market . . . . The larger rockets, which occasionally make room for secondary passengers, launch when their larger primary passengers are ready, not before.”).

11. FAAOCST, *supra* note 4, at 2 (“[T]he value is in scheduling; small satellite operators, especially those with constellations of many satellites, can have greater control over their business plans.”).

12. See Michael Safi, *India Launches Record-Breaking 104 Satellites from Single Rocket*, GUARDIAN (Feb. 15, 2017, 6:45 EST) <https://www.theguardian.com/science/2017/feb/15/india-launches-record-breaking-104-satellites-from-single-rocket> (“The [PSLV] launch helps to cement India’s place as a serious player in the burgeoning private space market, expected to significantly grow as the demand for telecommunications services increases.”); R. S. Venkatesh, *PSLV – Travel Beyond the Blue*, VIKATAN.COM (Feb. 16, 2017, 2:39 PM), <http://www.vikatan.com/news/english/80953-pslv--the-travel-beyond-the-blue-isro-vikataninfographic.html> (illustrating that the PSLV is a global vehicle).

Launch Act (CSLA),<sup>13</sup> which prohibits India from selling launch services at cheaper prices than those offered by the United States.<sup>14</sup> The United States, for its part, fears that freely importing launch services risks the very existence of its own launch industry.<sup>15</sup> India, however, has refused to sign the CSLA.<sup>16</sup>

The ongoing conflict between India and the United States is not the first in the international trade of launch services.<sup>17</sup> Regulation in this arena is long overdue. Without it, the evolving launch-service landscape threatens to aggravate the problem.

The General Agreement on Trade in Services (GATS) is well-equipped to put an end to the tension that exists in the international trade of launch services. This note examines the United States-India conflict, which is a microcosm of the international situation, through the lens of the GATS.

Section I provides background on the international launch service industry, the United States-India conflict, other similar conflicts within the international trade of launch services, space law, and the GATS. Section II analyzes why regulation of launch services is necessary and how the GATS can facilitate the international trade of launch services by carefully examining the United States-India conflict and debunking the typical misconceptions that arise in this context.

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13. Michael J. Listner, *India's Commercial Space Conundrum*, SPACE THOUGHTS (July 6, 2016), <https://spacethoughtsblog.wordpress.com/2016/07/06/indias-commercial-space-conundrum/>.

14. *Id.*

15. Selding, *supra* note 8, (“[T]he FAA said it agreed with its Commercial Space Transportation Advisory Committee (COMSTAC) that Indian launch services, owned and controlled by the Indian government, threaten to ‘distort the conditions of competition’ in the launch-services market.”).

16. Listner, *supra* note 13.

17. See, e.g., Timothy A. Brooks, *Regulating International Trade in Launch Services*, 6 HIGH TECH. L.J. 59, 68 (1991) (“[T]he European Space Agency (ESA), in keeping with its criticism of NASA’s failure to separate the commercial and research elements of its program, transferred its launch services to the French corporation Arianespace in March 1980.”).

## I. BACKGROUND

## A. THE INTERNATIONAL LAUNCH SERVICE INDUSTRY

The need for telecommunication satellites in orbit led to the development of a global industry that dedicates itself to launching satellites into outer space.<sup>18</sup> A “launch service” includes everything from “contract signing through mission management and on-orbit delivery.”<sup>19</sup> Initially, only a few countries could sell launch services because the required technology was too advanced.<sup>20</sup> As technology became more accessible, more countries started launching satellites.<sup>21</sup> Nowadays, many countries reach orbit on a frequent basis; several European countries do so through their private launching service Arianespace,<sup>22</sup> and India does so through its government-run Indian Space Research Organization (ISRO).<sup>23</sup> China and Japan also launch on a regular basis,<sup>24</sup> and many other countries are eager to follow suit.<sup>25</sup>

The global space economy, largely driven by demand for

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18. See Hobe, *supra* note 1, at 872.

19. *About ILS*, ILS, <http://www.ilslaunch.com/about-us> (last visited Jan. 28, 2017).

20. See OECD, *supra* note 7, at 4 (“During the cold war, major scientific and engineering breakthroughs took place in different parts of the world, often in isolation, as military research and development and industrial secrecy forced economies to preserve their own technological advances.”).

21. *Id.* (“In the 1980s, only a handful of countries had the capacity to build and launch a satellite. Many more countries and corporate players across a wide range of industrial sectors are now engaged in space related activities, a trend that is expected to strengthen in the future.”).

22. Hobe, *supra* note 1, at 15; Howell, *supra* note 6.

23. *About ISRO*, DEPT OF INDIAN SPACE RESEARCH ORG., <http://www.isro.gov.in/about-isro> (last visited July 22, 2017).

24. See PETER VAN FENEMA, *Legal Aspects of Launch Services and Space Transportation*, in HANDBOOK OF SPACE LAW 382, 394–95 (Frans von der Dunk & Fabio Tronchetti eds., 2015).

25. See *id.* at 396 (showing that the list of countries that have performed at least one successful launch has grown to include Brazil, Iran, Israel, North Korea, and South Korea).

telecommunications,<sup>26</sup> is skyrocketing.<sup>27</sup> Its value was estimated in 2005 to be between \$170–234 billion.<sup>28</sup> Only a decade later, the value of the space economy reached about \$324 billion.<sup>29</sup>

The tremendous growth has resulted, in part, from the world reaching orbit more frequently.<sup>30</sup> The constant need for internet connectivity has required an ever-increasing amount of satellites in space.<sup>31</sup> India, for example, offers huge potential market for satellite industries because it has a sizable population but much of it does not yet connect to the internet.<sup>32</sup> Experts predict that launches around the world will increase by thirty percent in order to accommodate for countries such as India.<sup>33</sup>

Although the space economy has grown remarkably and continues to grow,<sup>34</sup> the commercial launch service market has not kept pace.<sup>35</sup> This is because the launching infrastructure is not yet equipped to meet the latent demand generated by smallsat companies.<sup>36</sup> Currently, these smallsats must hitch a ride on launches carrying larger payloads.<sup>37</sup> This is suboptimal

26. Gary Oleson, *Effects of Changing Economics on Space Architecture and Engineering*, THE SPACE REVIEW (May 16, 2016), <http://www.thespacereview.com/article/2986/1> (“Commercial markets make up more than three-quarters of space industry markets, mostly driven by global telecommunications.”); see also *The Space Report 2016*, SPACE FOUNDATION (2016), [https://www.spacefoundation.org/sites/default/files/downloads/The\\_Space\\_Report\\_2016\\_overview.pdf](https://www.spacefoundation.org/sites/default/files/downloads/The_Space_Report_2016_overview.pdf) (explaining that the commercial sector, consisting of telecommunications, broadcasting, and Earth observation, constitutes the largest sector).

27. *The Space Report 2010 Reveals Global Space Economy Grew 40 Percent Over Five Years*, SPACE FOUNDATION (Apr. 12, 2010) [hereinafter *Space Report 2010*], <https://www.spacefoundation.org/media/press-releases/space-report-2010-reveals-global-space-economy-grew-40-percent-over-five-years>.

28. OECD, *The Space Economy at a Glance 2007: Highlights*, at 15 (2007), <http://dx.doi.org/10.1787/9789264040847-en>.

29. FAAOCST, *supra* note 4, at 1.

30. See *id.* (“[T]he annual number of orbital launches conducted worldwide has steadily increased.”).

31. Kyunghye Park et al., *High Hopes for Satellites*, BLOOMBERG BUSINESSWEEK, May 23, 2016, at 19.

32. *Id.* at 20.

33. *Id.* at 19.

34. OECD, *supra* note 7, at 1 (“[T]he number of countries and companies investing in space systems and their downstream applications continues to grow.”).

35. FAAOCST, *supra* note 4, at 2.

36. *Id.*; OECD, *supra* note 7, at 7 (“Small satellites have become in the past five years more attractive than ever, due to their lower development costs and shorter production lead times.”).

37. FAAOCST, *supra* note 4, at 2.

as the companies prefer to have their own launches so they can choose their own launch dates.<sup>38</sup>

The new movement in space transportation, “NewSpace,” reflects this need for entrepreneurship and innovation in order to meet the demand in the smallsat market.<sup>39</sup> Launch service providers are developing special vehicles that make it easier for smallsats to reach orbit.<sup>40</sup> SpaceX, for example, made aerospace history on March 30, 2017, when it reused a rocket.<sup>41</sup>

Unfortunately, NewSpace does not provide an immediate solution to the lack of smallsat launch services.<sup>42</sup> Profit-driven companies simply prefer to launch their satellites on an available foreign launch vehicle instead of waiting until domestic launch service industries catch up to speed.<sup>43</sup> The most popular of these foreign launch vehicles is India’s PSLV, a rocket that caters towards smallsats,<sup>44</sup> which attracts worldwide demand.<sup>45</sup> On February 15, 2017, the PSLV successfully

38. *Id.*

39. See Gerrard Cowan, *It's a New Space Age for Satellite Builders*, WALL ST. J., Oct. 3, 2016, <https://www.wsj.com/articles/its-a-new-space-age-for-satellite-builders-1475460122>.

40. FAAOCST, *supra* note 4, at 2; Oleson, *supra* note 26 (“The lack of dedicated launch vehicles to deliver smallsats to their preferred orbits has attracted more than a dozen potential new entrants to the launch services business.”); e.g., FAAOCST, *supra* note 4, at Orbital Launch Vehicle Fact Sheets (stating that Firefly Space Systems is designing an “aerospike” engine, redirects the exhaust in a way that makes the engine lighter and more efficient, and is specifically catered towards smallsats); LauncherOne Service Guide Version 2.0, VIRGIN GALACTIC 2 (Mar. 25, 2016), [http://www.virgingalactic.com/assets/uploads/2014/11/VG\\_LauncherOne\\_ServiceGuide\\_v0.2\\_OS.R.pdf](http://www.virgingalactic.com/assets/uploads/2014/11/VG_LauncherOne_ServiceGuide_v0.2_OS.R.pdf) (showing how Virgin Galactic is designing an airplane to send the small payloads into orbit).

41. James Dean, *SpaceX Launches, Lands Used Falcon 9 Rocket in Historic First*, FLA. TODAY (Mar. 30, 2017), <http://www.floridatoday.com/story/tech/science/space/spacex/2017/03/30/spacex-launches-lands-falcon9-in-historic-mission-kennedy-space-center-florida-ses10/99815686/>.

42. See FAAOCST, *supra* note 4, at 2.

43. Cody Knipfer, *Of India and ICBMs: Two Current Concerns for American Small-Satellite Launch*, SPACE REV. (Apr. 25, 2016), <http://www.thespacereview.com/article/2969/1> (“American small-satellite manufacturers and operators, many of whom have plans to fly large constellations of Earth observation or telecommunications spacecraft, want to use now whatever launch platforms that are available and affordable.”).

44. See *id.* (“[T]he PSLV is a substantially cheaper platform with greater capabilities than most of its competition.”).

45. See Peter B. de Selding, *India's ISRO: Protectionist Satellite Telecom Policy Is Good Business for Us*, SPACE INTEL REP. (Feb. 23, 2017), <https://www.spaceintelreport.com/indias-isro-protectionist-satellite-telecom-policy-is-good-business-for-us/> (“The PSLV launch vehicle has seen a substantial growth in its appeal to non-Indian operators of small, and some not-

launched a payload of 104 foreign satellites into orbit,<sup>46</sup> shattering the previously-held record by Russia for the most number of satellites sent into space on a single launch.<sup>47</sup>

However, India subsidizes the PSLV,<sup>48</sup> and American launch service providers worry that they cannot compete with the prices.<sup>49</sup> Fortunately for the American providers, the United States has a longstanding policy against satellite exports (in other words, importing launch services) by American manufacturers.<sup>50</sup> The United States defends its policy by arguing that freely exporting satellites threatens to destroy its launch service industry.<sup>51</sup>

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so-small, commercial Earth observation satellites . . . . The office of India's prime minister said revenue from foreign satellite owners using the PSLV rocket between 2013 and 2015 totaled \$101 million.”); Malavika Vyawahare, *ISRO Launch: Why US Companies Face Trouble Engaging with India's Space Agency*, HINDUSTAN TIMES (Feb. 17, 2017), <http://www.hindustantimes.com/india-news/isro-launch-why-us-companies-face-trouble-engaging-with-india-s-space-agency/story-CiPWjGho5zsk08tigBJLLJ.html> (“The reason ISRO [owner of the PSLV] is preferred by foreign companies for satellite launches [is] because it is able to send them to space at a cheaper rate compared to an American company like SpaceX.”).

46. *ISRO Sets Space Record: Highlights of Successful Launch of Cartosat-2 and 103 Other Satellites*, HINDUSTAN TIMES (Feb. 15, 2017), <http://www.hindustantimes.com/india-news/final-countdown-isro-hours-away-from-record-launch-of-104-satellites-into-space/story-yfC70LKVupmiagGxWvnW0I.html>; see also Peter B. de Selding, *U.S. Policy on India's Rockets: Dead Man Walking*, SPACE INTEL REP. (Feb. 15, 2017), <https://www.spaceintelreport.com/us-policy-on-indias-rockets-dead-man-walking/> (“The successful launch Feb. 15 [sic] of India's PSLV rocket carrying 104 satellites testifies to the vehicle's increasing flexibility and a much-needed provider of launch services for owners of very small satellites for commercial companies and research organizations.”).

47. See *ISRO Sets Space Record: Highlights of Successful Launch of Cartosat-2 and 103 Other Satellites*, *supra* note 46 (“It puts a wide margin between it and the next record holder, the Russian Space Agency that launched 37 satellites in 2014.”).

48. See Knipfer, *supra* note 43 (“The PSLV was developed as an ISRO program, and the profits made off commercial launch feeds back into India's space budget. This does constitute government subsidy of the Indian launch market; in contrast, the American companies developing small launch vehicles have done so largely through private investment, with NASA purchasing their services through fixed-price contracts.”); see also Madanapalle, *supra* note 9 (“[T]he [U.S.] committee [on Science, Space, and Technology] found that India was ‘dumping’ the launch vehicles in the commercial market to the detriment of US firms.”).

49. See Madanapalle, *supra* note 9.

50. See *id.*

51. See Vyawahare, *supra* note 45.

Profit is not the only concern in the international trade of launch services. Some countries are reluctant to send their satellites to foreigners because they worry that the sensitive technology risks national security.<sup>52</sup> In fact, some countries perceive trading satellites to be so dangerous that they have formed international regimes for protection.<sup>53</sup> The most prominent is the Missile Technology Control Regime (MTCR).<sup>54</sup> It is “an informal and voluntary association of countries which share the goals of non-proliferation of unmanned delivery systems.”<sup>55</sup>

The MTCR regulates trade with a set of guidelines in the form of two categories of items.<sup>56</sup> “Complete rocket and unmanned aerial vehicle systems (including . . . space launch vehicles . . . )” are the first category,<sup>57</sup> and these items are generally banned as exports.<sup>58</sup> The guidelines give more export-flexibility to the second category of items, which consists of missiles that may have uses other than delivering weapons of mass destruction.<sup>59</sup>

Most importantly, the MTCR Guidelines explicitly state that they are “not designed to impede national space programs or international cooperation in such programs as long as such programs could not contribute to delivery systems for weapons of mass destruction.”<sup>60</sup> Simply put, the MTCR discourages cooperation when it threatens world security, but otherwise encourages countries to cooperate in launching innocuous items such as telecommunication satellites.<sup>61</sup>

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52. See Fenema, *supra* note 24, at 417; see also DEP'T OF DEFENSE AND STATE, RISK ASSESSMENT OF UNITED STATES SPACE EXPORT CONTROL POLICY 2 (2012) [hereinafter RISK ASSESSMENT].

53. See Fenema, *supra* note 24, at 418–21 (introducing the different regimes that govern national security for satellite exports).

54. See *id.* at 421 (explaining that other armament-related export regimes should not control items that are already covered by the MTCR).

55. *Id.* at 418.

56. *Id.* at 419.

57. *MTCR Guidelines and the Equipment, Software and Technology Annex*, MISSILE TECH. CONTROL REGIME, <http://mtrc.info/mtrc-guidelines/> (last visited June 3, 2017) [hereinafter MCTR Guidelines].

58. Fenema, *supra* note 24, at 419 (“[These items] are licensed for export only on rare occasions.”).

59. See *MTCR Guidelines*, *supra* note 57.

60. *Id.*

61. See Fenema, *supra* note 24, at 419.



The United States has been a member of the MTCR since its establishment in 1987.<sup>62</sup> India became the newest member in June of 2016.<sup>63</sup> Membership in this regime puts countries in a better position to conduct more launches because it garners trust from the other members.<sup>64</sup> India, for example, gained “access to high-end testing technology for its solid rocket booster propulsion system, which fires up the first stage of the [PSLV],” when it became a member of the MTCR.<sup>65</sup>

United States legislation has dealt with the national security aspects of satellite exports. “Until the late 1980s, [United States] export regulations distinguished between communications satellites built for military, defence and national security purposes and satellites destined for civil and/or commercial use . . . .”<sup>66</sup> During this time, the Executive branch decided whether the International Traffic in Arms Regulations (ITAR), controlled by the strict Department of State,<sup>67</sup> or Export Administration Regulations (EAR), controlled by the Department of Commerce,<sup>68</sup> applied.<sup>69</sup>

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62. *Missile Technology Control Regime (MTCR)*, NUCLEAR THREAT INITIATIVE, <http://www.nti.org/learn/treaties-and-regimes/missile-technology-control-regime-mtcr/> (last updated Feb. 1, 2017).

63. *Id.*

64. See *MTCR Membership to Help India Export Satellites and Launch Vehicles: Govt*, DECCAN CHRONICLE, July 21, 2016, <http://www.deccanchronicle.com/nation/current-affairs/210716/mtcr-membership-to-help-india-export-satellites-and-launch-vehicles-govt.html>.

65. Pranab Dhal Samanta, *ISRO Aided by India’s Entry into Elite MTCR Club*, THE ECONOMIC TIMES (Feb. 17, 2017), <http://economictimes.indiatimes.com/news/science/isro-aided-by-indias-entry-into-elite-mtcr-club/articleshow/57195341.cms>.

66. Fenema, *supra* note 24, at 429.

67. *ITAR and EAR compliance*, WHATIS.COM, <http://whatis.techtarget.com/definition/ITAR-and-EAR-compliance> (last updated Feb. 2012) (“[ITAR is] [s]trict regulatory licensing—does not address commercial or research objectives.”); *The International Traffic in Arms Regulations*, U.S. DEP’T OF STATE, [http://www.pmddtc.state.gov/regulations\\_laws/itar.html](http://www.pmddtc.state.gov/regulations_laws/itar.html) (last updated Sept. 6, 2017).

68. *Export Licensing, (ITAR and EAR)*, U.S. DEP’T. OF COMMERCE, BUREAU OF INDUS. AND SEC. (May 2013), <https://www.bis.doc.gov/index.php/forms-documents/technology-evaluation/781-export-licensing/file> (“The U.S. Department of Commerce is responsible for implementing and enforcing EAR.”).

69. Fenema, *supra* note 24, at 429–30.

The enactment of the Strom Thurmond Act in 1998,<sup>70</sup> a reaction to international tension at the time,<sup>71</sup> drastically changed this procedure.<sup>72</sup> The Act stated that

[D]ue to the military sensitivity of the technologies involved, it is in the national security interest of the United States that United States satellites and related items be subject to the same export controls that apply under United States law and practices to munitions . . . all satellites and related items that are on the Commerce Control List of dual-use items . . . shall be transferred to the United States Munitions List . . . .<sup>73</sup>

In other words, the executive branch no longer had the power to determine that a satellite could receive lenient export controls under the EAR instead of the strict ITAR controls.<sup>74</sup>

The new categorical regulation severely hindered the United States satellite industry:

[T]he value of contracts lost due to ITAR between 2003 and 2006 was 2.35 billion dollars . . . . In 1995, United States satellite manufacturers enjoyed a 75 percent share of the global market; ten years later, this has dropped to 41 percent, and has hovered between 35 and 50 percent since then. ITAR has become a market differentiator . . . .<sup>75</sup>

The United States satellite industry begged for reform, and its backlash about overregulation eventually reached

70. Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Pub. L. No. 105-261 §§ 1511–1516, 112 Stat. 1920, 2173–2178 (1998) (codified as amended at 22 U.S.C. § 2778 (2017)) [hereinafter Strom Thurmond National Defense Authorization Act].

71. Fenema, *supra* note 24, at 430–31 (explaining that the fear that the Chinese obtained sensitive United States technology resulted in the adoption of the Act).

72. *Id.* at 431.

73. *Id.*; Strom Thurmond National Defense Authorization Act §§ 1511, 1513.

74. See Fenema, *supra* note 24, at 431.

75. *Export Controls, Arms Sales, and Reform: Balancing U.S. Interests, Part II: Hearing Before the H. Comm. on Foreign Affairs*, 112th Cong. 31 (2012) (statement of Patricia A. Cooper, President, Satellite Industry Association) [hereinafter *Hearing Before the H. Comm. on Foreign Affairs*].

Congress.<sup>76</sup> In 2012, the State and Defense Departments submitted a report to Congress that outlined many of the defects of the current export regime.<sup>77</sup> It stated that “[t]he U.S. Government’s control of commercial satellites . . . as munitions items is not effective in protecting U.S. national security because some dual-use satellites . . . equivalent to those originating in the United States are available from non-U.S. providers.”<sup>78</sup> It also noted that “[o]ver the last [fifteen] years, a substantial number of commercial satellite systems . . . have become less critical to national security[,] [and] [d]uring that time, other countries have become more proficient in space technologies.”<sup>79</sup> For these reasons, the report recommended that the “authority to determine the appropriate export control status of satellites and space-related items be returned to the President.”<sup>80</sup>

Congress listened, and in 2013, it enacted the National Defense Authorization Act,<sup>81</sup> which returned the power to determine satellite export controls to the executive branch.<sup>82</sup> As a result, innocuous items such as telecommunication satellite exports were to be controlled by lenient Department of Commerce controls instead of automatically being controlled by strict Department of State controls.<sup>83</sup>

#### B. THE UNITED STATES-INDIA CONFLICT

The ongoing conflict between the United States and India hinges on India’s refusal to sign the CSLA.<sup>84</sup> Without India’s signature, the United States bans its smallsat companies from freely launching on the highly-coveted PSLV.<sup>85</sup> Although protests from the smallsat companies have pressured the United States into allowing waivers to the ban,<sup>86</sup> the United States only grants these waivers on a case-by-case basis.<sup>87</sup> Smallsat

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76. Fenema, *supra* note 24, at 435.

77. *Id.*

78. RISK ASSESSMENT, *supra* note 52, at 1.

79. *Id.*

80. *Id.*

81. H.R. 4310, 112th Cong. (2012) (enacted); *see also* Fenema, *supra* note 24, at 435.

82. Fenema, *supra* note 24, at 435.

83. *See id.* at 435–36.

84. *See* Listner, *supra* note 13.

85. *Id.*

86. *See* Vyawahare, *supra* note 45.

87. *Id.* (“If American companies must launch in India they need to apply

companies greatly prefer to launch at whim on the PSLV.<sup>88</sup>

The CSLA protects the American industry from competing with subsidized markets.<sup>89</sup> It prohibits government owned foreign launch service providers from selling launch services at prices lower than those offered by the United States.<sup>90</sup> The United States launch service industry insists that the prohibition is necessary to prevent itself from being overrun.<sup>91</sup>

India, however, refuses to accept the agreement.<sup>92</sup> India feels that its low prices can make it a prominent player in the international satellite launch market even without the launching of American satellites.<sup>93</sup> Because the CSLA only applies to government-owned launch service providers, India can circumvent it by privatizing the PSLV.<sup>94</sup> In fact, India already has plans to do so by 2020.<sup>95</sup> Privatizing launch services promises to reduce the cost of launches, increase satellite capacity per launch, and increase the quantity of launches per year.<sup>96</sup>

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for a waiver, which is approved on a case to case basis.”).

88. *See id.* (explaining that United States policy is detrimental to countries with immediate launch needs).

89. Listner, *supra* note 13.

90. *Id.*

91. Selding, *supra* note 8 (“The rationale is that these non-U.S. launchers, not bound by the constraints of profit and loss – [sic] but hungry for hard-currency export earnings – [sic] will undercut commercial U.S. companies’ launch prices and keep them from gaining market traction.”).

92. Listner, *supra* note 13.

93. *See* Vyawahare, *supra* note 45 (indicating that many other countries are vying for India’s launch services).

94. Listner, *supra* note 13.

95. Srinivas Laxman, *Plan to Largely Privatize PSLV Operations by 2020: Isro Chief*, TIMES OF INDIA (Feb. 15, 2016, 9:15 AM IST), <http://timesofindia.indiatimes.com/india/Plan-to-largely-privatize-PSLV-operations-by-2020-Isro-chief/articleshow/50990145.cms> (“[T]he operation of [the Indian space program’s] workhorse—the [PSLV]—will be largely privatized in four years.”).

96. *Id.* (“[T]he advantage of largely privatizing the PSLV operations is to boost capacity and consequently increase the rate of launches from 12 to 18 [sic] annually.”); *see* Aditya Madanapalle, *Isro Plans to Involve Indian Industries to Increase Satellite Launch Capacity*, FIRSTPOST (Feb. 3, 2017, 12:01 IST), <http://tech.firstpost.com/news-analysis/isro-plans-to-involve-indian-industries-to-increase-satellite-launch-capacity-360615.html>.

C. OTHER CONFLICTS IN THE INTERNATIONAL TRADE OF  
LAUNCH SERVICES

The United States-India conflict is not the first involving the international trade of launch services. In 1984, Transpace Carriers Inc. (TCI), a United States launch service provider, accused Arianespace of receiving subsidies.<sup>97</sup> Europe countered that the United States restricted its satellite market to United States launch service providers only.<sup>98</sup> The President of the United States eventually determined that he would not take action against Europe.<sup>99</sup>

In 1989, the United States signed an agreement with China that allowed the Eastern power, for the first time, to launch satellites manufactured in the United States.<sup>100</sup> The United States worried that China would run away with the satellite market if left on its own, so the United States-China Agreement contained two limitations: launch quota and price.<sup>101</sup> In 1990, China launched a satellite at half the price that Arianespace was offering.<sup>102</sup> In response, Arianespace accused China of violating the Agreement even though Arianespace was never a party to it.<sup>103</sup> In the end, the United States took no effective enforcement action.<sup>104</sup>

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97. Fenema, *supra* note 24, at 449.

98. Frans von der Dunk, *International Trade Aspects of Space Services*, in *HANDBOOK OF SPACE LAW*, *supra* note 24, at 837.

99. Determination Under Section 301 of the Trade Act of 1974, 50 Fed. Reg. 140, 29631 (July 17, 1985); *see* Dunk, *supra* note 98, at 838.

100. Fenema, *supra* note 24, at 444.

101. *Id.*; *see* Dunk, *supra* note 98, at 840.

102. H.P. Van Fenema, *Cooperation and Competition in Space Transportation*, in *THE HIGHWAYS OF AIR AND OUTER SPACE OVER ASIA* 235 (C.J. Cheng & P.M.J. Mendes de Leon eds., 1992).

103. *Id.*; *see* Dunk, *supra* note 98, at 841.

104. Fenema, *supra* note 24.

## D. SPACE LAW

Space law mandates international cooperation.<sup>105</sup> The Outer Space Treaty, which all major launching nations have ratified,<sup>106</sup> states that “[i]n the exploration and use of outer space . . . States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and *shall conduct all of their activities in outer space . . . with due regard to the corresponding interests of all other States Parties to the Treaty.*”<sup>107</sup>

## E. THE GATS

The WTO consists of the WTO Agreement and annexed agreements, which include the GATS.<sup>108</sup> Together, they contain the rules on international trade and a Dispute Settlement Body (DSB) for enforcing disputes.<sup>109</sup>

The WTO pursues liberalized world trade.<sup>110</sup> The key to trade liberalization is the breaking down of trade barriers at national borders.<sup>111</sup> The principle of comparative advantage, which holds that countries will always increase their wealth by

105. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies art. IX, Jan. 27, 1967, 18.3 U.S.T 2410 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty].

106. *See id.*

107. *Id.* (emphasis added).

108. WTO Legal Texts, WORLD TRADE ORGANIZATION [hereinafter WTO], [https://www.wto.org/english/docs\\_e/legal\\_e/legal\\_e.htm](https://www.wto.org/english/docs_e/legal_e/legal_e.htm) (last visited June 22, 2017) (“Foremost is the Agreement Establishing the WTO (or the WTO Agreement), which serves as an umbrella agreement. Annexed are the agreements on goods, services and intellectual property, dispute settlement, trade policy review mechanism and the plurilateral agreements.”).

109. *See Overview: A Navigational Guide*, WTO, [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/agrm1\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm1_e.htm), (last visited June 22, 2017) (“[The WTO agreements] spell out the principles of liberalization, and the permitted exceptions. They include individual countries’ commitments to lower customs tariffs and other trade barriers, and to open and keep open services markets.”); *Dispute Settlement*, WTO, [https://www.wto.org/english/tratop\\_e/dispu\\_e/dispu\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm) (last visited June 22, 2017) (“Resolving trade disputes is one of the core activities of the WTO.”).

110. *See What is the World Trade Organization?*, WTO, [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/fact1\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact1_e.htm) (last visited June 24, 2017).

111. *See id.* (“The [WTO] system’s overriding purpose is to help trade flow as freely as possible—so long as there are no undesirable side-effects—because this is important for economic development and well-being. That partly means removing obstacles.”).

removing trade barriers,<sup>112</sup> already incentivizes countries to trade with one another.<sup>113</sup> However, domestic policies frequently obstruct this from happening.<sup>114</sup>

The GATS confines its focus to liberalizing trade in services.<sup>115</sup> For example, the market access provisions, found in Article XVI, prohibit measures that limit the “number of service suppliers whether in the form of numerical quotas” or “the total number of service operations.”<sup>116</sup> In a similar vein, the national treatment provisions, found in Article XVII, prohibit member states from indirectly favoring domestic suppliers by obligating them to treat all foreign suppliers as nationals.<sup>117</sup>

But the application of these provisions is not automatic. The GATS allows countries to limit the amount of market access and national treatment they pledge in their schedule of commitments,<sup>118</sup> which contradicts the principle of comparative advantage.<sup>119</sup> Additionally, the provisions do not apply to government procurement.<sup>120</sup> Article XIII states that “Articles . . . XVI (market access) and XVII (national treatment) shall not apply to laws, regulations or requirements governing the procurement by governmental agencies of services purchased for governmental purposes and not with a view to commercial resale or with a view to use in the supply of services for commercial sale.”<sup>121</sup>

The GATS also addresses national security.<sup>122</sup> In order to protect states’ security interests, Article XIV states that

112. See *The Case for Open Trade*, WTO, [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/fact3\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact3_e.htm) (last visited Apr. 10, 2017).

113. *Id.*

114. *Id.* (describing protectionism as a “siren call” that yields short-term profits at the expense of greater long-term benefits).

115. See *Overview: A Navigational Guide*, *supra* note 109 (showing that the GATS covers services).

116. See GATS: General Agreement on Trade in Services, art. XVI, ¶¶ 2(a), 2(c), Apr. 15, 1994, 1869 U.N.T.S. 183, 33 I.L.M. 1167 (1994) [hereinafter GATS].

117. See GATS art. XVII.

118. *Guide to Reading the GATS Schedules of Specific Commitments and the List of Article II (MFN) Exemptions*, WTO, [https://www.wto.org/english/tratop\\_e/serv\\_e/guide1\\_e.htm](https://www.wto.org/english/tratop_e/serv_e/guide1_e.htm) (last visited June 24, 2017) (“For each service sector or sub-sector that is offered, the schedule must indicate, with respect to each of the four modes of supply, any limitations on market access or national treatment which are to be maintained.”).

119. See *The Case for Open Trade*, *supra* note 112.

120. See GATS art. XIII:1.

121. *Id.*

122. GATS Art. XIV bis.

“[n]othing in this agreement shall be construed to require any Member to furnish any information, the disclosure of which it considers contrary to its essential security interests.”<sup>123</sup>

Subsidies and emergency safeguards, addressed by Articles XV and X respectively, do not contain binding language like the articles covering market access, national treatment, or security interests.<sup>124</sup> Instead, they are part of the so-called “built-in agenda.”<sup>125</sup> “The [built-in agenda] reflects both the fact that not all services-related negotiations could be concluded within the time frame of the Uruguay Round, and that Members have already committed themselves . . . to successive rounds aimed at achieving a progressively higher level of liberalization.”<sup>126</sup> Article X, for instance, calls for prompt negotiations on emergency safeguards.<sup>127</sup> Likewise, Article XV requires that states negotiate on subsidies in order to “develop[] the necessary multilateral disciplines to avoid [their] trade-distortive effects.”<sup>128</sup> In the meantime, it promises to give those hurt by subsidies “sympathetic consideration.”<sup>129</sup> The Sixth WTO Ministerial Declaration instructed negotiators to “intensify their efforts to conclude the negotiations on rule-making.”<sup>130</sup>

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123. GATS XIV bis 1(a).

124. See GATS art. XV and X.

125. See *The General Agreement on Trade in Services (GATS): Objectives, Coverage and Disciplines*, WTO, [https://www.wto.org/english/tratop\\_e/serv\\_e/gatsqa\\_e.htm](https://www.wto.org/english/tratop_e/serv_e/gatsqa_e.htm) (last visited July 22, 2017) (“[V]arious GATS Articles provide for issue-specific negotiations intended to define rules and disciplines for domestic regulation (Article VI), emergency safeguards (Article X), government procurement (Article XIII), and subsidies (Article XV). These negotiations are currently under way.”).

126. *Id.*

127. See GATS art. X.

128. See GATS art. XV.

129. GATS art. XV ¶ 2.

130. See *Ministerial Declaration: Annexes Adopted on 18 December 2005*, WTO, Annex C, ¶ 4, [https://www.wto.org/english/thewto\\_e/minist\\_e/min05\\_e/final\\_annex\\_e.htm](https://www.wto.org/english/thewto_e/minist_e/min05_e/final_annex_e.htm).



## II. ANALYSIS

A. THE INTERNATIONAL TRADE OF LAUNCH SERVICES  
REQUIRES INTERNATIONAL COOPERATION

Countries struggle to cooperate with each other in the international trade of launch services. Providers often accuse foreign countries of violating trade rules.<sup>131</sup> When this happens, countries typically retaliate by claiming that they, too, are victims of trade violations.<sup>132</sup> These conflicts lead to trade protectionism, as witnessed in the current stand-off between the United States and India.<sup>133</sup> The United States is blocking India from freely launching United States satellites because India is allegedly subsidizing its launch services.<sup>134</sup>

Noncooperation and protectionism is problematic for several reasons. First, it handicaps the space economy,<sup>135</sup> of which the United States is particularly illustrative. When the Strom-Thurmond Act was in force, the United States satellite industry reported losses in the billions and a dramatic drop in market share.<sup>136</sup> Though Congress eventually repealed the legislation,<sup>137</sup> the satellite industry continues to struggle as a result of United States policy with India.<sup>138</sup> The inability of the smallsat market to take off substantially reduces the economic potential of the space industry because telecommunication services are its largest subsector.<sup>139</sup>

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131. See, e.g., Fenema, *supra* note 24, at 449 (stating that TCI accused Arianespace of launching subsidized rockets); Fenema, *supra* note 105 (stating that Arianespace accused China of subsidizing and dumping); Listner, *supra* note 13 (stating that the United States accuses India of subsidizing its launch services).

132. See, e.g., Fenema, *supra* note 24, at 449 (detailing how Europe retaliated that the United States limits its satellite market to domestic launchers); Listner, *supra* note 13 (detailing how India retaliates that the United States is restricting its satellite market to domestic launchers).

133. See Vyawahare, *supra* note 45 (showing how the conflict between India and the United States limits the United States from importing Indian launch services).

134. *Id.* (explaining how United States satellites must go through a complicated waiver process).

135. See *The Case for Open Trade*, *supra* note 116.

136. *Hearing Before the H. Comm. on Foreign Affairs*, *supra* note 75.

137. Dunk, *supra* note 98, at 435.

138. Madanapalle, *supra* note 9.

139. See Fed. Aviation Admin. Office of Comm. Space Transp., *supra* note 4, at 2 (“[T]he commercial launch pie has not grown significantly during the past decade . . . . There are some signs the commercial launch pie may be expanding,

Second, countries' refusal to trade launch services constitutes a violation of space law. The Outer Space Treaty states that "[i]n the exploration and use of outer space . . . States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and *shall conduct all of their activities in outer space . . . with due regard to the corresponding interests of all other States Parties to the Treaty.*"<sup>140</sup> Launch services are certainly an outer space activity, so conflicts such as United States-India are in breach of space law.<sup>141</sup>

Third, noncooperation blocks access to new business opportunities. NewSpace is introducing new types of vehicles that achieve economies of scale.<sup>142</sup> SpaceX, for example, can now earn greater revenue with less production costs because of its reusable rocket.<sup>143</sup> Greater economies of scale create business opportunities by broadening trade space.<sup>144</sup> However, the inability to contract with foreign entities limits companies from taking advantage of these fresh opportunities.<sup>145</sup> Thus, NewSpace adds tremendous pressure for international cooperation.<sup>146</sup>

Last, the demand for telecommunication services is geographically shifting. Countries such as India have enormous populations that are just beginning to go online.<sup>147</sup> The growing Eastern demand can cripple Western launch industries if they neglect trade.<sup>148</sup> Therefore, the changing demand for

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however. Several new launch vehicles are being developed specifically to address what some believe is latent demand among small satellite operators."); *id.* at 1 ("At \$95 billion in revenues, or about 29 percent, satellite television represents the largest segment of activity.").

140. See Outer Space Treaty, *supra* note 105, art. IX (emphasis added).

141. See *id.*

142. See *Economies of Scale and Scope*, THE ECONOMIST (Oct. 20, 2008), <http://www.economist.com/node/12446567> ("Economies of scale are factors that cause the average cost of producing something to fall as the volume of its output increases.").

143. Specifically, SpaceX is achieving "technical" economies of scale. See Kimberly Amadeo, *Economies of Scale*, THE BALANCE (Mar. 20, 2017), <https://www.thebalance.com/economies-of-scale-3305926> ("Technical economies of scale result from efficiencies in the production process itself.").

144. See Oleson, *supra* note 26 ("The joint effects of all these changes [that new launch vehicles cause] will expand the trade space for aerospace systems engineering.").

145. See *The Case for Open Trade*, *supra* note 112.

146. See Oleson, *supra* note 26 (explaining how NewSpace requires adaptability in the launch industry).

147. See Park, *supra* note 31.

148. See Dunk, *supra* note 98, at 839 (explaining how the United States has

telecommunication services threatens to further rupture the space economy.

On the other hand, trade in launch services is brim with potential if launch nations reduce protectionism.<sup>149</sup> All stand to benefit from increased trade because of the principle of comparative advantage,<sup>150</sup> and the untapped profit is astronomical given the size of the space economy.<sup>151</sup> Thus, if the goal is to maximize wealth, launch nations must find a way to cooperate.

#### B. THE GATS FACILITATES COOPERATION IN THE TRADE OF LAUNCH SERVICES

The GATS can facilitate the necessary cooperation,<sup>152</sup> as it provides a regulatory framework where countries can trade launch services effectively.<sup>153</sup>

Analyzing the United States–India conflict is an excellent demonstration of this because it is a microcosm of the global situation. Its central issues have already occurred in previous conflicts. Like the United States, TCI alleged subsidization,<sup>154</sup> and like India, Arianespace counter-alleged that the United States restricted the use of its satellite market to United States launch vehicles only.<sup>155</sup> Similarly, Arianespace’s allegation that China violated the United States–China Agreement served as a precursor to the ongoing United States insistence that India sign the CSLA because the United States, like Arianespace, wants regulation.<sup>156</sup> Neither of the previous conflicts witnessed any

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already created launch service agreements with Eastern countries like Russia and China stemming from fears that Eastern launch services providers could otherwise overrun their own domestic launch service industry).

149. See *The Case for Open Trade*, *supra* note 112.

150. *Id.*

151. See Fed. Aviation Admin. Office of Comm. Space Transp., *supra* note 4 (“The size of the global space industry . . . is estimated to be about \$324 billion.”).

152. See Dunk, *supra* note 101, at 843 (explaining that once launch services become more privatized and routine, that the GATS would be the best approach to a trading regime).

153. *Id.* at 841 (“The unilateral character of these agreements notwithstanding, the result of an embryonic global trade regime in launch services—in the place, as it were, of any GATS/WTO-oriented approach—continued to shimmer through.”).

154. See *id.* at 837.

155. See *id.*

156. *Id.* at 841.

sort of resolution.<sup>157</sup> As a result, resolving the United States-India conflict solves many issues that have been left unsettled.

The analysis proceeds by first demonstrating how the GATS can resolve the United States-India conflict, and then debunking the typical misconceptions that arise when considering the GATS control of launch services.

### 1. The GATS Can Resolve the United States-India Conflict

The GATS framework allows India to launch American satellites at whim on the PSLV without undermining the United States launch service industry.<sup>158</sup> With this in mind, both countries should seek GATS regulation immediately.<sup>159</sup> The United States can finally end the tension between its satellite and launch industries and soothe domestic relations.<sup>160</sup> India holds a crucial bargaining chip because it owns the world's most successful smallsat rocket at a time when smallsats are desperately seeking orbit.<sup>161</sup> Although India boasts that it can take charge in the market without launching United States rockets,<sup>162</sup> the innovative United States launch service industry will soon catch up to speed.<sup>163</sup> Therefore, it is in India's best interests to negotiate trading rules during the short time it has leverage.<sup>164</sup>

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157. *Id.* at 838, 841.

158. See Yun Zhao, *Liberalization of Space Launch Services within a Plurilateral Regime*, 7 J. WORLD INV. & TRADE 433, 441 (2006) (finding the WTO to be the best way to liberalize trade in launch services, and that the United States cannot continue to isolate itself in the face of growing world competition).

159. See Oleson, *supra* note 26 ("Large rewards await those who adapt most effectively to the new opportunities [arising from increased trade space in the space industry].").

160. See Selding, *supra* note 8 ("One small satellite owner said his company would go out of business if it had to wait for a reliable and cost-effective U.S. small satellite launch industry to be created.").

161. See Selding, *supra* note 45 (stating that the PSLV is appealing to smallsats from countries across the globe).

162. Vyawahare, *supra* note 45 (quoting an Indian official that states that ISRO does not need customers from the United States).

163. Madanapalle, *supra* note 9 ("The good times for Isro will stop as soon as the US launch industry further matures and once the next generation of US launch vehicles in development can serve the needs of US satellite launches.").

164. See Listner, *supra* note 13 ("India is primed to become a player in the commercial space but its continued reticence to create a legal and regulatory regime to allow commercial space activities by its private citizens risks its space industry to be left behind.").

The GATS specifically helps the United States by giving them an advantage at a crucial moment in international lawmaking.<sup>165</sup> Article XV awards the United States “sympathetic consideration” as victim to India’s subsidized launch services.<sup>166</sup>

Having “sympathetic consideration” is key in trade negotiation because the GATS, though lacking in binding language, vehemently condemns subsidization. Article XV *requires* that countries negotiate in order to “develop[] the necessary multilateral disciplines to avoid [their] trade-distortive effects.”<sup>167</sup> The legal obligation to discuss rules on subsidies is an example of how extremely uncomfortable the members of the GATS system are with allowing countries to trade unfairly. The Sixth WTO Ministerial Declaration adds to the urgency to create rules on subsidies by demanding that countries “*intensify* their efforts to conclude the negotiations on rule-making.” Therefore, the United States can expect the “sympathetic consideration” to be substantial.

As such, the United States finds itself in a strong legal position at a very pivotal moment in international lawmaking. Countries must write trade rules on launch services immediately given the harm without them.<sup>168</sup> The United States is under additional pressure because of the accelerating demand for launch services in the East.<sup>169</sup> Negotiating defensive trade rules on launch services with Eastern powers is nothing new to the United States.<sup>170</sup> The United States-China Agreement, with its launch and price quotas, is an example of the United States’

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165. See Dunk, *supra* note 98, at 841–43 (explaining how the GATS ban on subsidies may be crucial once countries such as India start providing launch services).

166. See GATS art. XV, ¶ 2.

167. GATS art. XV.

168. See Kniper, *supra* note 43 (“Some companies are privately suggesting that they may not be able to sustain business operations unless dedicated small-satellite launchers become available in a short time.”).

169. See generally Yee Xiang Yun, *Demand Rising in Asia-Pacific for More Powerful Satellites*, THE STAR ONLINE (Aug. 7, 2017), <http://www.thestar.com.my/business/business-news/2017/08/07/demand-rising-in-asiapacific-for-more-powerful-satellites/> (noting the growing demand in Asia for satellite launch services).

170. See Dunk, *supra* note 101, at 839 (“[Years ago,] fears arose in the Western world that Chinese, Russian, and Ukrainian launchers would undercut their global market shares by offering services at a much lower price. As the United States controlled the satellite manufacturing industry . . . it took the first steps to provide ‘rules of the road’ for establishment of a somewhat level playing field in global launch services.”).

prior history of bargaining with Eastern powers to mitigate their strengthening launch services.<sup>171</sup> Thus, it is in the best interests of the United States to draw multilateral trade rules now while it has legal bonuses such as “sympathetic consideration.”<sup>172</sup>

The GATS also helps India.<sup>173</sup> Specifically, the GATS improves India’s access to United States satellites. The CSLA requirement that India price its services either at or above United States prices violates the GATS because it is a limitation on a service.<sup>174</sup> Any limit on the total value of service transactions, unless otherwise specified within the schedule of commitments, is a violation of Article XVI.<sup>175</sup>

Albeit, the United States can avoid the violation by limiting market access or national treatment obligations in its schedule of commitments.<sup>176</sup> Both of these courses of action defeat the whole purpose of including launch services in the GATS and make India unlikely to commit to GATS regulation.<sup>177</sup> Fortunately, this will not be the case because the GATS, as discussed above, is also crucial to the United States.<sup>178</sup> Therefore, the GATS improves India’s ability to launch United States satellites.

Some aspects of the GATS are equally beneficial to both the United States and India. For example, the provision on emergency safeguards incentivizes the two countries to incorporate GATS regulation in the international trade of launch services because with it, the United States does not have to worry about the destruction of its domestic launch service industry, which means that India can export launch services more easily.<sup>179</sup>

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171. *Id.* at 840.

172. *See id.* at 841.

173. *See* Listner, *supra* note 13 (“Whatever the rationale for India’s reluctance to adopt a space policy and a true commercial space scheme, it pales in comparison to the long-term benefits and positive geopolitical effect in terms of prestige.”).

174. *See* GATS art. XVI, ¶ 2.

175. *See Guide to reading the GATS schedules of specific commitments and the list of article II (MFN) exemptions*, WTO, [https://www.wto.org/english/tratop\\_e/serv\\_e/guide1\\_e.htm](https://www.wto.org/english/tratop_e/serv_e/guide1_e.htm) (last visited Aug. 10, 2017).

176. GATS Art. XVII.

177. *See* Knipfer, *supra* note 43 (noting market forces surrounding U.S. protectionist policy and India PSLV providers).

178. *See id.* (explaining how the United States smallsat market needs access to the PSLV).

179. *See id.* (explaining how the United States is willing to freely import launch services from India so long as its home market survives).

The United States may counter that it does not matter that the GATS contains emergency safeguard measures if there is no express permission to use them; they are merely part of the built-in agenda.<sup>180</sup> This is not the case. Notwithstanding the lack of binding language, the GATS fiercely supports the use of emergency safeguard measures.

The GATS will not idly witness the destruction of one of its member's industries without a whole-hearted attempt to find a solution. Article X explicitly states "there *shall* be multilateral negotiations on the question of emergency safeguard measures."<sup>181</sup> Moreover, the Sixth WTO Ministerial Declaration demands that countries "*intensify* their efforts to conclude the negotiations on rule-making."<sup>182</sup> The sense of urgency shows that the GATS should apply at least some sort of legality to safeguards until the negotiations reach a conclusion.<sup>183</sup> Thus, the GATS will fervently strive to protect the United States launch service industry if it ever reaches dire straits.<sup>184</sup>

Comity also obligates India to allow the United States to exercise emergency safeguards if its launch service industry ever faces destruction. Trade in launch services already abides by comity. The MTCR, for example, is voluntary and informal,<sup>185</sup> yet members continue to cooperate for the mutual benefit of

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180. See GATS art. X.

181. *Id.*

182. WTO, Ministerial Declaration of 18 December 2005, Annex A, WTO Doc. WT/MIN(05)/DEC (2005), [https://www.wto.org/english/thewto\\_e/minist\\_e/min05\\_e/final\\_annex\\_e.htm](https://www.wto.org/english/thewto_e/minist_e/min05_e/final_annex_e.htm) (emphasis added).

183. See Gregory Shaffer et. al., *Indian Trade Lawyers and the Building of State Trade-Related Legal Capacity*, U. OF MINN. L. SCH. 1 (2014), <http://www.law.uci.edu/faculty/full-time/shaffer/pdfs/2016%20Indian%20Trade%20Lawyers%20and%20the%20Building%20of%20State%20Trade-Related%20Legal%20Capacity.pdf> ("The WTO should not be viewed as static and deterministic, autonomously affecting states. Rather, the WTO legal order is shaped by those who negotiate its terms and who participate in their interpretation, affecting how WTO law is understood and applied. The negotiation and interpretation of WTO law, in turn, affects countries' policy space for social and developmental initiatives as well as their ability to challenge foreign countries' trade restrictions affecting their exports. The scope of the WTO legal order entails not only formal disputes, which are of great interest and generate reams of scholarship, but also the shadow effects of law on claims that are settled and never known and on domestic regulatory policy initiatives that are advanced, not considered, or are shelved.")

184. See *id.* at 7 (noting examples when prior WTO action spurred states to exercise emergency safeguards).

185. See *MTCR Guidelines and the Equipment, Software and Technology Annex*, *supra* note 57.

reducing the risks of weapons proliferation.<sup>186</sup> Similarly, trade in launch services depends on cooperation for the mutual benefit of comparative advantage.<sup>187</sup> India is undermining international prosperity if it launches United States satellites without any regard for the well-being of the United States launch industry.<sup>188</sup> Therefore, the United States can expect India to allow for emergency safeguards for reasons of comity.

The United States can also trust that India will allow it to exercise safeguards because of space law. The Outer Space Treaty states that “[i]n the exploration and use of outer space . . . States Parties to the Treaty *shall be guided by the principle of co-operation* and mutual assistance and *shall conduct all of their activities in outer space . . . with due regard to the corresponding interests of all other States Parties to the Treaty.*”<sup>189</sup> If the United States satellite industry ever faces trouble, India violates space law if it refuses to allow the United States to exercise emergency safeguards because that is blatant disregard for the “corresponding interests of all other States Parties to the Treaty.”<sup>190</sup> As a result, the United States can exercise GATS emergency safeguards if necessary.<sup>191</sup>

Another aspect of the GATS that benefits both India and the United States is the DSB. When TCI complained that Arianespace was being subsidized, the United States government did nothing about it.<sup>192</sup> When Arianespace complained that China was violating the United States-China agreement, no enforcement action occurred.<sup>193</sup> The lack of enforcement is problematic because it discourages countries and companies from trusting one another.<sup>194</sup> Therefore, the United

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186. *Objectives of the MTCR*, MTCR, <http://mtrc.info/deutsch-ziele/> (last visited Apr. 8, 2017).

187. See *The Case for Open Trade*, *supra* note 112.

188. See *id.*; OECD, *supra* note 7, at 2 (explaining that international competition is fruitful to the space economy); Madanapalle, *supra* note 9 (“Indian satellite launches do not reflect the true costs of launching these satellites. The US launch services are at a disadvantage because they are pushed out of competition for the microsatellite and nanosatellite class of payloads.”).

189. Outer Space Treaty, *supra* note 105, art. IX (emphasis added).

190. *Id.*

191. *Id.*

192. See Determination Under Section 301 of the Trade Act of 1974, *supra* note 99.

193. Fenema, *supra* note 24, at 444.

194. *A Unique Contribution*, WTO, [https://www.wto.org/English/thewto\\_e/whatis\\_e/tif\\_e/disp1\\_e.htm](https://www.wto.org/English/thewto_e/whatis_e/tif_e/disp1_e.htm) (last visited Sept. 2, 2017) (“Without a means of



States should be willing to commit its launch service industry under the GATS because it contains enforcement mechanisms to ensure that India stays true to the trade rules.<sup>195</sup> Likewise, India should be secure in knowing that the DSB prevents the United States from breaching its own obligations, such as failing to abide by its schedule of commitments.<sup>196</sup>

The analysis above illustrates how the GATS preserves the United States launch industry even with waiver-less imports of India's launch services, and why both countries should seek GATS regulation immediately.

## 2. The Misconceptions of the GATS Regulation of Launch Services

Naturally, entering into a trading regime brings its own set of issues.<sup>197</sup> There are two major concerns that typically arise when considering the application of GATS regulation: government procurement and national security interests.<sup>198</sup>

First, government procurement may be relevant to the international trade of launch services;<sup>199</sup> even though privatization is sweeping the space industry,<sup>200</sup> some state governments still control their own space programs.<sup>201</sup> The concern is that the GATS cannot regulate trade in launch services because of Article XIII,<sup>202</sup> which states that "Articles . . . XVI [market access] and XVII [national treatment] shall not

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settling disputes, the rules-based system would be less effective because the rules could not be enforced.").

195. WTO Agreement Annex 2 art. 22 (compensation is available for a breach of the GATS); WTO Legal Texts, *supra* note 108.

196. See Appellate Body Report, *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WTO Doc. WT/DS285/AB/R (adopted Apr. 7, 2005) (stating that member-states that do not abide by their schedule of commitments will be subject to discipline from the DSB).

197. See Dunk, *supra* note 98, at 841–43.

198. Fenema, *supra* note 24, at 443; Zhao, *supra* note 158, at 436, 439.

199. Zhao, *supra* note 158, at 439.

200. Hobe, *supra* note 1 ("The discernable trend towards commercialisation and privatisation may in time pave the way for an international legal order for commercial space activities.").

201. Zhao, *supra* note 158, at 439.

202. See *id.* ("Launch services, following the example of telecommunications services, could be the second category of space activities to be regulated by the WTO rules. However, governments will remain major parties in the transactions. Accordingly, it would not be viable to liberalize launch services within the GATS framework, since government procurement is expressly excluded from the application of the provisions of this Agreement.").

apply to laws, regulations or requirements governing the procurement by governmental agencies of services purchased for governmental purposes and not with a view to commercial resale or with a view to use in the supply of services for commercial sale.”<sup>203</sup> Article XIII certainly applies to the United States-India conflict because the PSLV is owned and operated by the Indian government . . . at the moment.<sup>204</sup> India plans to privatize the PSLV as early as 2020.<sup>205</sup> The small timeframe means that any concern over Article XIII is short-lived.<sup>206</sup>

National security is the second misconception that arises when considering GATS regulation of trade in launch services. Scholars argue that if the GATS controls trade in launch services, then Article XIV becomes the GATS “baseline rule instead of the exception.”<sup>207</sup> India can argue, for instance, that the United States can rely on Article XIV to dodge its obligations by alleging that trading its satellites across borders is a security risk.<sup>208</sup> However, both the United States’ own legislation and the MTCR demonstrate that importing launch services is a harmless activity.

The repeal of the Strom-Thurmond Act in 2013, for instance, proves that trading launch services cannot possibly be a security risk.<sup>209</sup> Although it guaranteed limited access to United States technology by regulating all satellite exports under the strict ITAR controls,<sup>210</sup> the legislation infuriated the United States satellite industry which in turn pleaded for legislative reform.<sup>211</sup> The Departments of State and Defense themselves supported the satellite industry by pointing out that the “sensitive” technology was in fact already accessible in other countries,<sup>212</sup>

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203. GATS art. XIII:1.

204. See *About ISRO*, ISRO, <http://www.isro.gov.in/about-isro> (last visited Apr. 8, 2017).

205. See Laxman, *supra* note 95.

206. See Zhao, *supra* note 158, at 439 (“As a general trend, privatization is an ongoing process.”).

207. Dunk, *supra* note 98, at 843; see Zhao, *supra* note 158, at 436 (explaining that countries may avoid trade in satellites because of their sensitive technology).

208. See GATS art. XIV bis 1(a) (“Nothing in this agreement shall be construed to require any Member to furnish any information, the disclosure of which it considers contrary to its essential security interests.”).

209. See Fenema, *supra* note 24, at 431–36.

210. See Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, 22 U.S.C. 2278 §§ 1511-1516, Pub. L. No. 105-261 (1998).

211. Fenema, *supra* note 24, at 434–35.

212. Aaron R. Hutman & Nancy A. Fischer, *U.S. Congress Authorizes*

and “a substantial number of commercial satellite systems . . . have become less critical to national security.”<sup>213</sup> The eventual enactment of the National Defense Authorization Act for Fiscal Year 2013 proves that the Strom-Thurmond Act was overbearing.<sup>214</sup> Therefore, exporting satellites (or importing launch services) do not threaten national security.<sup>215</sup>

The MTCR, of which both India and the United States are members,<sup>216</sup> also shows how trading launch services is harmless, which means that countries cannot rely on the national security loopholes found in Article XIV. First, the MTCR is eager to accommodate for trade in telecommunication satellites because the second category allows for more flexibility.<sup>217</sup> The guidelines can keep it simple by putting a general ban on everything, but this deters trade.<sup>218</sup> If trading satellites is compatible with the regime against missile proliferation, then they must be innocuous.

Second, countries already trade with each other under the MTCR. Although the overarching purpose of the MTCR—to reduce the risk of missile proliferation<sup>219</sup>—suggests that there should not be any liberalized trading among launch nations, the MTCR Guidelines explicitly state that they are “not designed to impede national space programs or international cooperation in such programs as long as such programs could not contribute to delivery systems for weapons of mass destruction.”<sup>220</sup> Members to the MTCR treat this language as a blessing to fully cooperate<sup>221</sup> even though exporting satellites to a foreign launch

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*Satellite Export Control Reform*, PILLSBURY (Dec. 21, 2012), <https://www.pillsburylaw.com/en/news-and-insights/us-congress-authorizes-satellite-export-control-reform.html>.

213. RISK ASSESSMENT, *supra* note 52, at 1.

214. *See Fenema, supra* note 24, at 435.

215. *See id.*

216. *MTCR Partners*, MISSILE TECHNOLOGY CONTROL REGIME, <http://mtrc.info/partners/> (last visited Apr. 9, 2017).

217. *See MTCR Guidelines, supra* note 57.

218. *See id.*

219. *Guidelines for Sensitive Missile-Relevant Transfers*, MISSILE TECHNOLOGY CONTROL REGIME, <http://mtrc.info/guidelines-for-sensitive-missile-relevant-transfers/> (last visited Apr. 9, 2017) (“The purpose of these Guidelines is to limit the risks of proliferation of weapons of mass destruction (i.e. nuclear, chemical and biological weapons), by controlling transfers that could make a contribution to delivery systems (other than manned aircraft) for such weapons.”).

220. *MTCR Guidelines and the Equipment, Software and Technology Annex*, MTCR, <http://mtrc.info/mtrc-guidelines/> (last visited June 3, 2017).

221. *See Samanta, supra* note 65.

service provider can arguably be seen as always improving another state's missile programs.<sup>222</sup> India, for example, can now access high-end technology for its PSLV because of the trust it earned after joining the regime.<sup>223</sup> Therefore, trading launch services is safe because even the MTCR, the most prominent regime in mitigating the risks associated with trading launch services, encourages countries to cooperate.

In sum, countries cannot claim national security risks as an excuse to avoid trading obligations with launch services,<sup>224</sup> which further paves the way for the GATS.

### III. CONCLUSION

The value of the global space economy has soared, reaching a value of hundreds of billions of dollars.<sup>225</sup> However, the smallsat market has not kept pace<sup>226</sup> because smallsat companies cannot personalize their launch dates.<sup>227</sup> Currently, the lacking launch infrastructure in the United States limits them to launching smallsats as secondary payloads.<sup>228</sup>

India's rocket, the PSLV, caters towards smallsats<sup>229</sup> and earns worldwide demand.<sup>230</sup> However, the United States prohibits its satellite companies from using foreign launch vehicles such as the PSLV.<sup>231</sup> The United States reasons that subjecting its launch market to foreign competition may destroy it.<sup>232</sup>

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222. See Fenema, *supra* note 24, at 419.

223. *Id.*; see also, Nilova Roy Chaudhury, *India joins MTCR: Space, Missile cooperation with Russia easier*, RUSSIA & INDIA REPORT (June 9, 2016), [http://in.rbth.com/economics/cooperation/2016/06/09/india-joins-mtr-space-missile-cooperation-with-russia-easier\\_601593](http://in.rbth.com/economics/cooperation/2016/06/09/india-joins-mtr-space-missile-cooperation-with-russia-easier_601593) (“[India’s admission to the MTCR] should enable easier space and missile collaboration with Russia, which could not supply cryogenic engines and other dual use technology missiles to India, because it was bound by MTCR norms.”).

224. See Zhao, *supra* note 158, at 436 (“[T]he concern of technology transfer has been used as an excuse by the United States to refuse to open the launch services market.”).

225. See *Space Report 2010*, *supra* note 27.

226. Fed. Aviation Admin. Office of Comm. Space Transp., *supra* note 4.

227. *Id.* at 2.

228. *Id.*

229. Knipfer, *supra* note 43.

230. *Id.*

231. Madanapalle, *supra* note 9.

232. See *id.*

If the United States-India conflict were regulated according to the GATS, then the stand-off between India and the United States would come to an end. This is beneficial to both countries because of the principle of comparative advantage.<sup>233</sup> Essentially, the GATS facilitates trading launch services by both encouraging and compelling India and the United States to abide by proper trade rules.<sup>234</sup>

Although the nature of launch services suggests incompatibility with the GATS because of government procurement and national security interests,<sup>235</sup> in reality there is nothing that will obstruct its application. Privatization is sweeping the global space industry.<sup>236</sup> Congress once restricted satellite exports through legislation for security reasons, but repealed that legislation in 2013<sup>237</sup> because the widespread availability of satellite technology makes protecting it a frivolous exercise.<sup>238</sup> Even the MTCR, a regime against missile proliferation, encourages countries to cooperate in their trade of telecommunication satellites.<sup>239</sup>

Noncooperation among the spacefaring nations, which is a violation of space law,<sup>240</sup> is needlessly hampering the space economy.<sup>241</sup> Countries can facilitate the growth of the space economy by bestowing the launch service market to the GATS. After all, global regulation is only a matter of time because international interaction is only increasing. As former President Jimmy Carter stated in a letter that is travelling aboard the Voyager spacecraft on its current voyage: “We human beings are still divided into nation states, but these states are rapidly becoming a single global civilization.”<sup>242</sup>

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233. Gary Oleson, *supra* note 26.

234. See *Introduction to the WTO Dispute Settlement System*, WTO, [https://www.wto.org/english/tratop\\_e/dispu\\_e/disp\\_settlement\\_cbt\\_e/cls1p1\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/cls1p1_e.htm).

235. Zhao, *supra* note 158, at 436, 439.

236. See Hobe, *supra* note 1.

237. Fenema, *supra* note 24, at 429–36.

238. See Hutman & Fischer, *supra* note 212.

239. *Guidelines for Sensitive Missile-Relevant Transfers*, *supra* note 219.

240. Outer Space Treaty, *supra* note 105, art. IX (“In the exploration and use of outer space . . . States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct *all of their activities in outer space* . . . with due regard to the corresponding interests of all other States Parties to the Treaty.”).

241. See *The Case for Open Trade*, *supra* note 112.

242. President Jimmy Carter, *Voyager Spacecraft Statement of the President* (June 29, 1977).