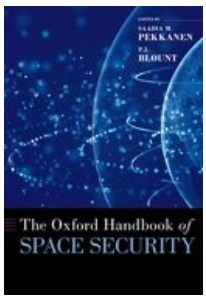

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CHAPTER

6 Commercial Space Peace Theory: Economic Interdependence and Conflict in Space

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Abstract

As home to a significant number of assets that underpin the global economy, space has been largely underappreciated in treatments of globalization and the economic ties that stem from it. Capabilities that are intrinsic to the global economy such as communications, financial transactions, and environmental and weather monitoring all depend on space-based systems. This chapter argues that economic interdependence between states depends to a great extent on these space systems thereby raising the cost of potential conflict in the domain. The chapter begins by highlighting the physical differences between the terrestrial and space domains that make operations in space more difficult. After highlighting the ways in which space systems facilitate global economic behavior, this chapter then lays out the five propositions of the commercial space peace theory. The theory not only has implications for how conflict in space may be discouraged by increasing the commercialization of space but also suggests ways in which international relations writ large may deal with unique issues such as the power of private companies. As a whole, the chapter represents a means by which traditional international relations theories may be applied in the space domain.

Keywords: commercial space peace theory, economic interdependence, space conflict, economic peace theory, commercialization of space

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Over the past three decades, globalization has been a major subject of study in the international relations (IR) and larger political science community. As it has increased, the degree to which countries have deepened and strengthened their interdependence has consequently increased. However, one of the more

significant assets that has enabled this growth has been relatively unappreciated: space-based assets that are, in many ways, the backbone of the global economy. Global Positioning Satellites (GPS) provide precise timing that underpins financial transactions across the globe, communications satellites provide instantaneous connections between peoples and countries, and weather satellites provide much needed information that is used for everything from local forecasts to emergency preparedness and response. The fact that space assets are underappreciated and underacknowledged as a vital part of globalization highlights two reinforcing ideas: the general lack of awareness among the public and policy practitioners of the importance of space and space-based assets and, consequently, the lack of consideration given to the space domain in the IR literature.

With the establishment in the United States and other countries of independent and specialized space forces and the subsequent open acknowledgement of space as a warfighting domain, IR scholars must grapple with how space activities affect global relations as well as the extent to which space activities are consonant with more terrestrial ones. Indeed, as General John Hyten pointed out in 2017, the question is not necessarily about war in space but war that *extends into* space (Hirsch 2018). This highlights that space warfighting cannot be considered in its own silo, but rather must be considered in tandem with terrestrial military action (Bowen 2020). In this chapter, I draw on my previous work (Whitman Cobb 2020) proposing an extension of economic peace theories to the space domain. My commercial space peace theory argues that
p. 94 because the global economy is significantly dependent on space assets, open, kinetic conflict in the space ↳ domain will be prohibitively costly. As such, states have a large incentive to avoid this situation so as to avoid harming their own economic prospects.

By way of preview, the chapter begins with a brief examination of the economic peace literature followed by a discussion of the economic value of space. I then discuss several of the propositions that make up the commercial space peace theory and consider their implications for the growing commercialization of space, the role and growth of non-state actors in space, and how IR can take more seriously the space domain in its work.

Logics of Peace

Theories of Economic Interdependence

The idea that economic interdependence reduces conflict is a long one in IR. Before beginning, it is useful to define what is meant here by interdependence. For our purposes, I take the definition of interdependence from Robert Keohane and Joseph Nye who define interdependence to be a situation of "mutual dependence" influenced by two dimensions, sensitivity and vulnerability (Keohane and Nye 2012, 7). "Sensitivity is the extent to which one country is affected by the actions of another, whereas vulnerability is the extent to which a country can insulate itself from the costly effects of events that occur elsewhere" (McMillan 1997, 34). Importantly, Keohane and Nye's notion of interdependence is different than the larger concept of globalization. Colloquially understood as a "shrinking of the world" making relationships and transactions between people and countries all the easier, it can be examined through trade, foreign investment, and money flows among other things (for a review of the notion of globalization within the IR literature, see Kacowicz and Mitrani 2016).

With this in mind, consider Keohane and Nye's concept of interdependence with respect to GPS. A previous disruption to the system in 2016 of just thirteen millionths of a second caused a cascade of disruptions from the United States to the United Kingdom and Canada (Glass 2016). For example, because of the integral role it plays in timing across the globe, problems in the GPS system can quickly spread, demonstrating a high degree of sensitivity. As for vulnerability, while alternative positioning, navigation, and timing (PNT)

systems exist including the European Union's Galileo, Russia's GLONASS, and China's BeiDou, none are as widely used or available as GPS (Glass 2016). Because of this widespread adoption and use, it would be very difficult indeed for individual state economies to insulate themselves from the effect of GPS issues. This is especially true because of how important timing is in global financial transactions.

In returning to the notion of economic interdependence, the underlying hypothesis is that increasing economic ties between countries discourages conflict that would harm a state's overall economy. While World War I dampened the enthusiasm for ideas such as those described by Norman Angell (1912), in more recent years, scholars have returned to the role that economics plays in mediating conflict through different
p. 95 types ↳ of economic mechanisms. Growing out of the democratic peace studies of the 1990s, various writers examined the role of trade (Polachek 1980; Polachek, Robst, and Chang 1999; Oneal and Russett 1999; Dorussen 1999; Morrow 1999; McDonald 2004; Hegre, Oneal, and Russett 2010), state interdependence (McMillan 1997; Mansfield and Pollins 2001; Keohane and Nye 2012), capitalism (Schneider and Gleditsch 2010; Mousseau 2010; Mueller 2010; Russett 2010; Rosecrance 2010; Gartzke and Hewitt 2010), market integration (Gartzke and Li 2003; Gartzke 2007), the expectations of future trade (Copeland 2015), and globalization (Murshed and Mamoon 2010; Choi 2010).

Like any good scholarly debate, however, the thesis that economic interdependence reduces conflict has also gathered its critics. Paul Krugman (1996), for example, objects on the principle that states themselves are not engaging in trade, firms are. While this is true, governments do have various incentives (electoral being just one) to ensure a strong and growing economy and, in doing so, are capable of making policy that either facilitates or disrupts economic relations among business entities (Bearce and Omori 2005; McDonald 2007; Brown and Stein 1982; Weingast, Shepsle, and Johnsen 1981; Mayhew 1974; Kleinberg and Fordham 2013). The failure of economic ties to prevent World War I has also been used to weaken the economic interdependence argument, though various scholars have pushed back on this citing, among other things, the outbreak of the war in states that were not as economically interdependent (Schumpeter 1955; Chatagnier and Castelli 2016; Gartzke and Lupu 2012; McDonald 2004). Finally, globalization and the trade asymmetries it can produce have also been highlighted as a potential *cause* of conflict rather than a means of reduction.

Commercial Space Peace

While there may indeed be limits to how much economic interdependence can reduce conflict on earth, space presents a different situation. As space scholars have long recognized, the space domain is unique as compared to terrestrial ones (Mendenhall 2018). The cost of getting and operating there is high, the physics are significantly different, and assets there are incredibly vulnerable to space weather, increasing amounts of debris, and more recently, threat of attack from other countries. While military actions in space must have terrestrial consequences for them to matter tactically and strategically (Bowen 2020), I argue economic interdependence may have greater power to dampen conflict *in* space because of the unique nature of space assets and the degree to which they underpin the global economy (Whitman Cobb 2020).

Given the often dangerous and difficult operating conditions of outer space (see Townsend, this volume), it might be rather surprising that the backbone of the global economy is predicated on such vulnerable machines operating in such a treacherous environment. The space industry is currently valued somewhere around US$350 billion, but some predict this to surge toward US$1 trillion by 2040 (Morgan Stanley 2021). This figure likely underestimates the importance of space to the global economy as it includes only those
p. 96 services with specific ties to space, like television broadcasting, satellite ↳ communications, and satellite hardware. Because space has been traditionally viewed as a sanctuary where military conflict has been absent (though utilized for military purposes), there has been little fear that important economic assets might be threatened (Moltz 2019). Given this, over the past fifty years, space-based assets have come to

provide critical economic services. While it is out of the scope of this chapter to go into significant detail, three areas may be discussed in brief: communications, remote sensing, and PNT (for a wider discussion, see Whitman Cobb 2020).

Communications is a broad heading for a variety of activities to include person-to-person and point-to-point connections but also broadcasting services like television and radio and the relay of different types of information like weather. Taking television alone, broadcasting satellites make up almost US$100 billion of the overall space economy with satellite radio adding an additional US$5 billion in 2018 (FAA 2018). More recently, the further miniaturization of satellite technology and the advent of cheaper launch methods is enabling the establishing of large satellite constellations like Starlink, which is planned to eventually include over 12,000 satellites operating in low earth orbit. The function of Starlink and other planned constellations like Amazon's Kuiper is to provide internet services across the globe thereby further growing the communications portion of the space economy.

Remote sensing is a similarly large category that encompasses things like weather, environmental monitoring, the identification of natural resources like oil and gas, and even monitoring of economic behavior like traffic or shipping patterns. Remote sensing has proven vital in warning of weather emergencies, responding to natural disasters, and even tracking the fallout from Covid-19 (Hudecheck et al. 2020). The United States Geological Service (USGS) estimated that the economic value of its Landsat system increased from US$2.19 billion in 2011 to US$3.45 billion in 2017 (USGS 2021). They further note that Landsat imagery has been used "in many ways including efforts to contain wildfires, increase worldwide crop production, identify famine risks, conserve water, control forest-killing diseases, and reduce climate change impacts" (USGS 2021).

Finally, PNT systems such as GPS provide valuable functions beyond just getting users from point to point. The super precise atomic clocks provide a timing service that enables financial transactions to be accurately made and synchronize activities like emergency services. One study found that a GPS outage would cost the US economy upward of US$1 billion a day for the first month, with costs only increasing (O'Connor et al. 2019). On the other hand, a 2021 report from RAND argues that this threat is perhaps overblown, noting the difficulty in attacking the entire system and the availability of backup systems (Hitchens 2021a). The report, however, lacks specific cost estimates while acknowledging that smaller scale disruptions are possible and no single technology would be able to fill the capability that GPS currently provides. Even if the entire GPS system does not come crashing down, such interruptions can still be costly to a global economic system that has come to rely on it. Additionally, there are an increasing number of examples where jammed GPS signals have led to off-track pilots who were relying on its signals (Harris 2021). While such incidents may not be
p. 97 economically ↳ costly, in the short run, they could be potentially dangerous in industries, like aviation, that rely on them for safety.

Much like the economic peace literature, commercial space peace theory also proposes that economics increases the cost of conflict therefore reducing the chances for it. Where these theories differ however, is in terms of unit of analysis and the mechanism of action. Instead of flows of trade or investment between states, this theory looks at the system as a whole and how interdependent states are on a global economy enabled by space systems. Rather than relationships between countries, it is the fact that the global economy is dependent on space that reduces conflicts (Whitman Cobb 2020). Assuming that states have an interest in improving their economic situation, they in turn have an interest in seeing the global economy succeed. This is not quite unlike the situation in the early space race period when the USSR and the United States realized that space imposes a certain environmental interdependence—that preserving the space domain in a way that enabled continued operations was worth more than the costs of conflict there (Moltz 2019). In a similar manner, this theory also suggests that states should rationally and strategically refrain from active conflict in space because of the economic interdependence that space has come to support.

Before examining some of the major propositions further in depth, there are two assumptions the theory makes. First, I assume that states are the central actors in the space domain. To be sure, the number of non-state actors with space capabilities and assets is increasing. SpaceX, for example, owns and operates the largest number of satellites as of mid-2021 with over sixteen hundred Starlink satellites, and more continue to be added. Independent launch capabilities offered by SpaceX and other companies, including the United Launch Alliance, also give these companies significant power. Even with this growth, the space domain is likely to remain dominated by states for several reasons. For one, the Outer Space Treaty (OST) makes states responsible for all actions in outer space including those undertaken by non-state entities under their control. As such, companies like SpaceX must receive permission from the US government to operate and the United States assumes responsibility for what private US parties do in space. Additionally, while the costs of accessing space and building space assets has come down considerably in recent years, the barrier to entry remains high. While this is not necessarily the case in the cyber domain where scholars have predicted a decline in the role and power of the state (Hirst and Thompson 1995; Thurow 2000; for the application of this argument to space, see Newlove-Eriksson and Eriksson 2013), the cost still makes space operations prohibitive for all but a few wealthy individuals and states. Finally, though commercial companies are growing, states still serve as a major, if not the largest, customer of space-related services (Pekkanen 2019). While non-state actors such as private companies might be empowered to act on behalf of a state, the fact remains that space will continue to be dominated by state actors for some time.

Second, I assume that states are rational actors. While there are critiques and caveats to the assumption of rationality that have been explored elsewhere, for the purposes of establishing a basic model, the
p. 98 assumption is included here. I now turn to examining ↳ two of the major arguments of the commercial space peace theory, state interest in economic success and the high economic costs of conflict in space.

Reflections and Evidence on the Propositions from Commercial Space Peace

States are interested in promoting economic success, which is increasingly dependent on space. With the understanding that previous economic peace theories have ignored this premise, this theory begins with the idea that states have a fundamental responsibility for and interest in their own economic success. This is perhaps even clearer in the space domain where leaders have often invoked the economic incentives and spin offs that come with state investments in science and technology. Not only did then-Vice President Lyndon B. Johnson cite the economic benefits of space spending in 1963 (Brinkley 2019), but, more recently, then-Vice President Mike Pence did so as well, stating in 2019 that the United States must remain first in space to "propel our economy," in addition to other international benefits.

Further, democratic governments are interested in economic success for electoral purposes. Elected officials (for the most part) are interested in being elected and reelected and must satisfy their voters, many of whom look to their own economic improvements (Mayhew 1974). Space has become a vital part of economic development and support since technological spin-offs often add to economic benefits. Despite critics who see space spending as wasteful diversions from other potential investments, no money is spent in space, rather, it is spent on Earth. For instance, a 2013 report found that National Aeronautics and Space Agency (NASA) develops sixteen hundred new technologies a year and for "every dollar NASA spends on employees, businesses, universities, and others generates $2.60 of output in the economy, as compared to the federal non-military average of $2.30 and the federal military average of $2.00" (Tauri Group 2013, 10). While one might suspect that this incentive is decreased in autocratic and authoritarian states whose leaders do not have to stand for election, as Bruce Bueno de Mesquita and colleagues show in their selectorate theory, there is still a population that authoritarian leaders must satisfy (Bueno de Mesquita et al. 1999; 2004). Though the selectorate is smaller and thus easier to please, authoritarian leaders still need the acquiescence of this

group, which can be kept content with economic resources and benefits. If space investments can be used to stimulate and support economic growth, then states of multiple types will see that as a beneficial investment.

Indeed, this has been the case for authoritarian China in recent years as it moved to encourage a commercial space sector in 2014 (Lu et al. 2019). Though several dozen commercial companies have emerged since, many, if not most, remain significantly tied to the government. The question becomes, then, if erstwhile
p. 99 private, ↳ commercial companies are still agents of the state, why does the Chinese government seek to encourage their growth? In an expansive analysis of the Chinese commercial space industry, the authors identify several drivers including the economic potential of commercial state and economic development (Lu et al. 2019). They write, "Chinese aspirations with respect to investments in space are being driven by slowing economic growth, and a sense that China needs to encourage the growth of new high-value-added industrial sectors" (23). In this, we find further evidence that even authoritarian governments have an incentive in pursuing economic development and therefore a motivation for preserving the domain in which they may pursue that.

As China's experience with fostering a commercial space industry shows, not only do authoritarian leaders have an interest in fostering economic development as it goes to their own success, but states are increasingly realizing that overall economic success is dependent on space systems. With recent proposals to classify space-based assets as critical infrastructure, the United States also seems to have come to a similar conclusion (Foust 2021). As the global economy becomes even more dependent on space-based systems, this leads to the next major argument of the commercial space peace theory.

The more dependent on space the economy, the greater the economic costs of conflict in space. In considering this premise, we can think about a hypothetical space attack. Putting aside what effect the attack would have on terrestrial actions, state A initiates a kinetic attack on a key communications satellite for state B. While military forces around the world plan and train for contingencies such as the loss of communication or intelligence information, the debris from the attack remains in orbit where it could easily impact with other satellites. Should the debris strike other, uninvolved satellites such as those for GPS or communications, the global economy would reasonably be affected by it. State A, to the extent that its economy is intertwined with the global economy, would then see economic losses from such actions. In other words, even though the attack in space was limited and limited to military assets only, the potential economic fallout from such an action might reverberate throughout the globe and ultimately cause more harm than good to State A. As Roger Handberg (2017, 420) writes, "Globalization has been fostered through satellite technologies. Their disruption can be devastating for all parties, regardless of who is the winner of loser."

In a situation as this one, the United States would no doubt be the most vulnerable simply because it possesses the highest number of currently operating satellites with more than 2500 (UCS Satellite Database 2023). This will likely continue to be the case as US companies like SpaceX continue to build out their megaconstellations of satellites. However, a singular attack on a satellite can have far greater ramifications beyond the moment of impact. As demonstrated by the 2021 Russian ASAT test, kinetic conflict greatly increases debris that can in turn collide with other satellites or spacecraft. This increases the chance of a collisional cascade as predicted by the Kessler syndrome and makes operations for satellites of all countries far more difficult (Kessler and Cour-Palais 1978). Further, though the United States may have the highest number of satellites, we must also consider the types of services they provide, services which the entire
p. 100 globe has come to depend upon. While we have already considered the case of GPS, ↳ even SpaceX's Starlink is now providing space-based internet access to more than ninety thousand users in twelve countries with those numbers projected to grow (Sheetz 2021). Thus, the impact of a singular attack will have consequences that go beyond that moment in time.

The high pace of technological advances in space will likely contribute to the global economy's further dependence on space. For one, as companies begin to deploy large satellite constellations, they will become an increasingly important part of the global economy. Aside from Starlink or Amazon's Kuiper, remote imaging services provided by companies like Leo Labs and Planet are increasingly being used by companies of all types to track and manage earthly activity. Michael Hudecheck and colleagues (2020) highlight how they were able to use data on night-time light emissions to measure the economic and social impact of Covid-19. Among their findings is evidence to "suggest that Chinese citizens started self-isolating before the government quarantines—earlier than commonly believed." As such, they argue that remote sensing data of this type can be used not only to track and monitor economic activity but give early indications, in near real time, of potential threats. As a means of managing, processing, and making sense of such large amounts of incoming data, companies have also had to develop analytical and machine processing systems that can quickly identify changes in satellite images to bring them to the attention of the customer. The result is that remote imaging and sensing satellites are a growing portion of the overall space economy which further enable economic growth on the ground (SIA 2020).

Another area of increasing technological change is in the realm of space tourism. While space tourism is unlikely to make up a large share of the space economy (at least in the near future), it certainly ups the ante in terms of potential costs of conflict. Conflict that threatens astronauts on the International Space Station or the missions of various space flight participants (as non-formally trained space tourists are being called) might not have a significant economic impact, but it would certainly have an impact on a state's international reputation and prestige. For instance, we might envision a scenario where an attack occurs while a SpaceX-launched tourist mission is in orbit. If it potentially threatened the mission and the participants on board, the state that initiated the attack would likely suffer reputational costs. Given that prestige and reputation are a significant driver of state behavior in space (Launius 2012; Moltz 2019; Muir-Harmony 2020), it would impose a certain cost.

One potential objection to this premise is that asymmetric dependence on space might actually encourage open conflict. As states like Russia and China have observed the degree to which the US military is dependent on space, they have increased their own space capabilities with an eye toward taking advantage of it in the event of a conflict. However, states like Russia and China are themselves highly integrated into the global economic system, thus any attacks would have the possibility of backfiring economically if not militarily. While there have been some efforts at decoupling economic ties particularly between China and the United States in the wake of the Covid-19 pandemic, it is not at all clear that it will be possible or would isolate a country like China from global economic downturns (Morrison 2021). What is perhaps of greater
p. 101 concern ↳ are rogue states like North Korea and Iran who are, for all intents and purposes, *not* a part of the global economy. Their rudimentary missile and space capabilities are established enough that they could carry out kinetic anti-satellite attacks or even detonate a nuclear weapon in outer space, causing widespread disruption and chaos (Harrison et al. 2021). Given the lack of economic consequences that would flow to them, they are likely to be less inhibited by the potential for economic costs.

One intriguing implication of this premise is that there are a whole population of states that are essentially space powers though they do not have independent launch or extensive space capabilities. Because a state's economy is tied into the global economy, a state without a significant space presence may still be indirectly affected by kinetic conflict. As negotiations on norms of behavior in space continue with no apparent resolution in sight, engaging this larger set of actors with a deep interest in preserving the space environment may add needed momentum. Even if a state has nothing to lose in space or on the ground (for instance a ground station that is monitoring and communicating with space-based systems), a state without a major space presence can still lose economically in the case of conflict.

The benefits of active conflict in space must be greater than the economic consequences of it. The final premise of the commercial space peace thesis represents its main implications: the economic costs of conflict in outer

space are likely to be high, with a significant potential to spread throughout the global economy and thus affect the initiator of any attack. States, then, if they are behaving rationally, should be discouraged from engaging in such actions because of the significant cost. This is not to say that states will never find military conflict in space to be worth the cost; some states, seeing an advantage open for the taking may very well conclude that the risk is worthwhile enough to bear whatever costs may come whether that be economically or in the loss of the ability to operate in space at all. In an era that finds a return to great power competition, there might even be further motivations for first strikes in space. However, what is different about this era of great power competition compared to the Cold War is that economic interdependence between the United States and China and between all states and the global economy is far greater. Thus, to the extent that the costs of conflict are increasing, particularly as economic ties to space are strengthened, states should rationally choose not to avail themselves of those options.

The commercial space peace theory does not address the likelihood or desirability of space weaponization, merely that space weapons (in most cases) should not be used due to their cost. In recent years, US officials have claimed that both Russia and China have already weaponized space, however, no unclassified evidence is available to date (Garamone 2020). It is also possible the United States has done so as well, but with no public acknowledgement (Hitchens 2021b). While these types of claims and rhetoric certainly point toward a growing arms race in space, it is still possible that weapons can exist and not be used, much like the nuclear arsenal. It would certainly be in the rational interest of major space powers and near-peer states in particular to protect space assets and thus the global economy and their place in it, but it does not necessarily remove the threat of weapons themselves.

The commercial space peace theory also does not suggest that new treaties or institutions are necessarily needed to govern the commons that is space. While these efforts have been ongoing for some time, little progress has been made over the past several decades in terms of defining space weapons or preventing their placement and/or usage. There has been some movement in this field in recent years with the US-led Artemis Accords, but this agreement focuses on principles for the exploitation and exploration of the Moon and not the larger domain itself. Certainly, formal international agreements would be beneficial in terms of enforcement and clear understanding, but they might not be necessary given the invisible hand of economic interest.

Following from that, a policy implication from this theory is that increasing commercialization of space and further integration of space-based assets into the global economy would be one means of increasing the costs of conflict and thereby reducing its chances. While I discuss the ways in which commercial companies themselves have an interest in preventing space conflict and how they might achieve that elsewhere (Whitman Cobb 2020), one direct means is through contracting for services. This does several things: it creates a market for space services that companies can step in to provide and it can reduce costs for the state as private companies continue to innovate. Additionally, Brad Townsend (2020) suggests that contracting out for space security purposes might also alleviate a growing security dilemma as capabilities that might be seen as hostile if operated by a state would instead be controlled by a private company. One example of this might be debris removal. Technologies that could potentially remediate space debris are inherently dual use —if you can take a piece of debris out of orbit, you can also remove an active satellite. However, if states themselves do not own and operate this technology, it might not be seen as threatening to other space actors. As an aside, this would necessitate some international agreement on debris, as even debris remains the property of the state that launched it and thus removing it from outer space would require their approval.

States can also create the legal regimes necessary to foster private space companies and engage in efforts like the Artemis Accords, which begin to lay the foundation for exploration of the moon.

Conclusion

The belief that increased economic ties between actors lead to peace is an old one: Immanuel Kant famously theorized in the late 1700s that republican forms of government would hesitate to engage in war because citizens "would be very cautious in commencing such a poor game" due to its inevitable costs. While I doubt that Kant would have considered outer space activities as a natural extension of his argument, the idea remains the same: the economic costs of war in space, made all the more significant by its relationship to the global economy, are so great that they should rationally discourage any potential hostile action there.

p. 103 While significant parts of scholarship on space have been rooted in rather realist notions of state power and the expansion of it (for instance, Dolman 2002), the commercial space peace theory shows that much remains to be done in terms of IR and space. While scholars can and should look at how IR theories can be applied in space, they must keep in mind just how physically different the domain is. It is tempting to apply lessons learned and models of behavior from Earth to space—analogies such as Antarctica, law of the seas and air, and even laws of the sea bed have generated comparisons. However, as Elizabeth Mendenhall (2018) points out, space is significantly different from any of these others areas. As such, scholars must appreciate the uniqueness of space and not simply translate findings from one domain to another.

These differences, properly recognized, may also lead to new insights on the relationship between states and, perhaps importantly moving forward, how non-state actors like private companies might be further integrated into global governance systems. For example, as states become further dependent on companies for access to space, these companies will see a significant increase in their own power. By denying certain states launch access or restricting what states can or cannot launch, they are exercising a certain power over the space domain. With the reluctance of states to engage with one another in setting out more detailed rules of the road for space, there may come a time where space companies act cooperatively to do so in their stead. What would it mean to have private companies behaving in this manner? How might states manage such events? Could it possibly be the thing that motivates them to engage more in diplomatic efforts? How might we empower non-state actors in a productive way at the international level? On the other side, how can we prevent companies from behaving badly on an international scale? All of these questions suggest new areas of thought for IR in general in an age of globalization.

Recent events in space and the growing threat of weaponization are threatening the notion called for in the OST—that space be used for peaceful purposes. If, as scholars of the economic and commercial peace propose, economic ties are a means of achieving more peaceful relations, then preserving the ability of the global economy and states to benefit from it contributes to the OST's mission of preserving peaceful purposes. Heated rhetoric from leaders in the United States, China, and Russia, however, threaten both peaceful purposes of space and the global economy. With little movement on the diplomatic front, economic relations among the entire global community may serve as a means through which peaceful purposes can be maintained. It requires little of leaders and policymakers beyond a recognition of the intricate ways in which the economy and the space domain are linked and the immense cost that conflict would inflict.

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