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Information Externalities: A Further Note on the Market Provision of National Defense

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Abstract
Markets suffer from a free-rider problem in the provision of national defense, but offense also suffers from a free-rider problem. An opportunistic country may attempt to capture the spoils generated by another country's offensive efforts, or other countries may freely enjoy the satisfaction of seeing a hated enemy defeated by a country that pays for an offensive against it. Offense also generates a previously unconsidered benefit for free-riders in the form of valuable information about the capabilities of the offense and defense, and the scale of this benefit is increasing with technological and economic advancement around the world.

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I. Introduction

Economic analysis of the provision of national defense has tended to find in favor of government provision over market provision because of the free-rider problem. Market provision of defense, especially at the scale of an entire nation, can produce benefits to nonpayers, who are therefore incentivized not to contribute toward a service they value, leaving the population somewhere short of the theoretical welfare-maximizing supply of defense. Leeson, Coyne, and Duncan (2014; 2016) note that the free-rider problem simultaneously hinders the provision of national offense and that it is, therefore, possible that even defense that does not meet the theoretically optimal level may be sufficient to deter a nonoptimal offense. This argument can be extended to include external benefits generated by the offense that were not considered by these authors, and evidence of these external benefits is available in the current conflict in Ukraine.

This note argues that information about the combatants generated by the act of aggression is a benefit that, thanks to technological advancement, is increasingly available to not just the victims of aggression but also the aggressor's non-engaged enemies and competitors. Moreover, this information is gathered and distributed

as a byproduct of other activities within the market, which mitigates any free-rider problem it may have otherwise been hindered by.

The Leeson, Coyne, and Duncan (2014) argument has been challenged on the grounds that voluntary defense is provided in response to the offense faced by defenders, not in response to a theoretically optimal level of offense that never obtains in reality (Newhard 2016). If the level of offense that defenders face is suboptimal, it is relative to that level of offense that the market will then underprovide defense. This challenge is valid enough when funding decisions are made sequentially, offense first and then defense, but there is no reason in theory to assume that funding decisions are not made simultaneously instead, and this would more closely match real-world conditions. When funding decisions are made simultaneously, the underprovision of defense is no longer tied to a predetermined level of offense, and the Leeson, Coyne, and Duncan argument stands. It may be argued that defense is underprovided relative to a perceived level of offense, but if perceptions matched reality in war, there would be no failure to strike a prewar bargain over spoils (Fearon 1995; Levy 2011). Voluntarily provided defense may just as easily be a response to an overly high estimate of aggression as it is to a low estimate of aggression, and if funding decisions are made simultaneously before war breaks out and reveals the true capabilities of both combatants, then there is no a priori reason to assume defense must be underprovided relative to offense.

II. The Free-Rider Problem Not Previously Considered

Leeson, Coyne, and Duncan (2014) note two possible sources of free-riding when a country decides to engage in national offense. First, if country A attacks country B in order to capture certain spoils of war, it may weaken country B to the point where those spoils can now be appropriated at low cost by an opportunistic country C. Country A has essentially paid to produce a chance at acquiring spoils that any third-party country may free-ride on, and this will cause national offense to be underprovided relative to its theoretically optimal level. Second, country A's offense may produce intangible benefits to third-party countries by attacking country B if country B represents a commonly hated political, ethnic, or religious group. As before, third-party countries are able to free-ride on country A's production of a nonrivalrous and non-excludable benefit.

I argue that another possibility for free-riding exists and that the importance of this type of free-riding has been increasing. War serves

as an information-revealing mechanism. It reveals which combatant is stronger than the other by revealing information about weapons, training, motivation, logistic capacity, economic capacity, and other relevant factors. War reveals this information reliably because combatants have a clear incentive to use their military capabilities to try to win and they cannot use their capabilities without revealing information about them (Fearon 1995). This means that when country A decides to engage in national offense, it produces non-excludable and nonrivalrous valuable information about both the defender's military capabilities and its own military capabilities. This information reduces the intelligence-gathering costs faced by any other country concerned with country A's or country B's military capabilities and allows it to better tailor its diplomacy and its own military capabilities in response.

The information revealed by conflict is a mixture of technical information that, in principle, could have been discovered without conflict by costly spying and information about how country A and country B perform under conditions of competition. By initiating conflict, country A reduces uncertainty, dispels propaganda and strategic lies, and provides otherwise-unobtainable valuable information to any interested country regardless of whether they contributed to country A's offense.

The scale of this externality is increasing with the mass adoption of cheap telecommunications technology and the proliferation of commercial satellites. The information externality produced by the initiation of conflict has never been zero. Warring states have regularly played host to third-party observers embedded within their own militaries, and journalists have often embedded with military forces as well or otherwise stayed near active conflicts to better report on them. Now, however, the number of people with the means and desire to observe a conflict has increased exponentially. Engaging in national offense against a country in which most citizens have internet access and cell phones means that the aggressor's every move and piece of equipment is more likely to be recorded from multiple sources and distributed across platforms with extremely large and diverse audiences. The recorder does not even need to be motivated to have an impact on the conflict or surrounding geopolitical situation, because conflict footage is itself a valuable resource for generating engagement on the social media sites it often gets posted to.

A brief examination of the situation in Ukraine demonstrates the existence and growing scale of this information-externality problem

for the offense. The free-to-use website Liveuamap.com shows real-time updates on the location and disposition of Russian forces in Ukraine by collecting posts, pictures, and videos from nearby Ukrainian citizens using social media sites such as Twitter and Telegram (Liveuamap 2022). Oryx is a website that tracks and verifies the destruction and method of destruction of both Russian and Ukrainian armored vehicles using intelligence gathered from social media posts, and does so for free (Oryx 2022). Higgins (2022) scrapes information from Google Earth, Instagram, GETTR, and a variety of other sources to collect and publish information on Russian activities and munitions. Social media posts have enabled decentralized experts in a variety of fields to offer free analysis of Russian maintenance deficiencies as was the case with the systemic failure of Russian armored-vehicle tires early on in the war (Defense Connect 2022), Russian procurement deficiencies as was the case with the lack of Russian night-vision capabilities (OCCRP 2018; Cranny-Evans and Ivshina 2022), and the evolution of drone warfare as conducted by Russians and Ukrainians (Crumley 2022). By conducting an offense against Ukraine, Russia has revealed critical information that other nations now consume at no cost.

III. Concluding Thoughts

This kind of publicly available information is called open-source intelligence. It fuels the daily reports of media outlets and think tanks (Institute for the Study of War 2022; NPR 2022) and now constitutes approximately 80 percent of the intelligence gathered and used by government intelligence agencies (Tau and Volz 2021). It is true that aggression against countries with only a light internet and social media presence will minimize the open-source intelligence freely generated by the aggressor's activities, but it is also true that decreases in global poverty are reducing the number of countries in which this condition holds and that these countries have fewer war spoils to justify the expense of national offense in the first place.

The open-source intelligence problem and the problem of free-riding on information also apply to defense. By engaging in national defense, a country reveals information about its own capabilities and how those capabilities perform under conditions of competition. However, national offense suffers comparatively more than national defense from this free-rider problem because national offense requires sending troops and resources into areas populated by the defender's civilians, who then act as a decentralized web of intelligence gatherers.

The aggressor's civilians do not deploy with their troops and resources and so are not present to act as dispersed intelligence gatherers. As with the original Leeson, Coyne, and Duncan (2014) argument about the free-rider problem facing national offense, I cannot prove that this information free-rider problem for the offense is sufficient to make the market provision of defense viable. I have, however, shown that this one margin favors defense over offense and is likely to increasingly favor defense as the world advances technologically and economically.

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