

***The Diffusion of Military Power:
Causes and Consequences for International Politics***
by Michael C. Horowitz

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Abstract

In Diffusion of Military Power: Causes and Consequences for International Politics, Michael C. Horowitz presents his 'adoption-capacity theory' to explain why military technology and doctrine on the cutting edge are diffused differently in a given international system and how it influences the mechanism of power transition. In his theory, Horowitz focuses on the state's adoption-capacity determined by financial intensity and organizational capacity. This is valuable as a complementary approach to traditional models that emphasize geopolitical factors. Although his empirically tested argument has some problems with regards to omitted variables and applicability to current diffusion matter, it offers an important springboard for further discussion on the diffusion of military innovation both in academic and policy contexts.

Keywords: innovation, power transition, adoption-capacity theory, financial intensity, organizational capacity

要旨

革新的な軍事技術やドクトリンが各国においてどのように採用され、その結果として国際システムの様態にいかなる影響を及ぼすかという問題は、国際政治学における重要なテーマの一つである。ホロウィッツは本書において、財政力と組織資本に焦点を当てた「導入能力理論 (adoption-capacity theory)」を提示し、地政学的要因を重視する従来のアプローチに補完的な立場をとりつつそのメカニズムを説明しようと試みる。本書の議論は変数の解釈や現代の事例への適用についていくつかの問題を孕んでいるものの、技術革新の加速と同時に装備調達への財政的制約が高まる近年の状況下において重要な学術的議論の基盤を提供するのみならず、高い政策的関心を集めうるものである。

キーワード：イノベーション、パワートランジション、導入能力理論、財政力、組織資本

The mechanism and consequences of military innovation and its diffusion have been one of the main themes in the study of international relations. This is because technological and doctrinal innovations could change the structure of the international system and cause major wars in certain situations. In *Diffusion of Military Power: Causes and Consequences for International Politics*, Michael C. Horowitz undertakes the task of answering “why some military innovations spread and influence international politics while others do not, or do so in very different ways” (2010: 3). Historically, as Horowitz points out, the diffusion process is not homogeneous in spite of the realist prediction that states have the incentive to adopt military innovation because of their nature to seek power or their reaction to external threat. The theoretical purpose of this book is to give a coherent explanation for various diffusion patterns.

The theme of this book reflects a timely academic and policy matter: possible power transition between the United States and China. Since the end of the Cold War the U.S. has accelerated the adoption of information and communication technology (ICT) and established military superiority. But in recent years the U.S. capacity to maintain its status as a dominant power is eroding due to the excessive financial burden caused by military operations in Iraq and Afghanistan, and the economic recession accelerated by the bankruptcy of Lehman Brothers and the debt crisis in Europe. Under these circumstances, the U.S. and its allies are confronting difficult decisions concerning acquisition strategies, while China, with its remarkable economic growth, is increasing its investment in high-tech military equipment. Against this backdrop, the argument of this book could be evaluated in terms not just of its consistency with past cases but also of its applicability to current and future prospects of diffusion.

In order to explain the difference among the patterns of diffusion in the past, Horowitz offers the “adoption-capacity theory” that focuses on two factors, required financial intensity and organizational capacity, as determinants of diffusion which evolve differently on a case-by-case basis. Financial intensity refers to the capacity to mobilize necessary resources when states attempt to adopt a major military innovation. The required level of financial intensity for adoption is also influenced by the level of commercial application of a given technology because it determines the unit cost of hardware. Horowitz argues hypothetically that “[t]he higher the cost per unit of the hardware associated with an innovation and the more the underlying technologies are exclusively military oriented, the higher the level of financial intensity required to adopt the innovation” (2010: 31).

While financial intensity refers to the state's capacity to acquire innovative hardware, this is not enough to understand the process of diffusion and its consequences on the international system. In many cases, organizational change is also required in order to translate technological innovation into practical military power which could influence the balance of power among states. In order to explain this dimension of military innovation, Horowitz focuses on another factor: organizational capacity. It is defined as "an intangible asset that allows organizations to change in response to perceived shifts in the underlying environment" (2010: 33) which is demonstrated through military doctrine, education, recruitment, and training.

Another feature of Horowitz's argument is that his analytical focus covers not just whether and how a state adopts innovation but also how this process influences international politics. In his hypothesis, it is pointed out that financial intensity and organizational capacity that a specific innovation requires is important in understanding the mechanism of power transition because they determine the length of the first adopter's advantages and the late mover's capacity to catch up.

In order to test these hypothetical arguments derived from adoption-capacity theory, Horowitz selects four cases of diffusion: carrier warfare (chapter 3, the required level of financial intensity and organizational capacity are both high), nuclear revolution (chapter 4, the required level of financial intensity is high but the required level of organizational capacity is low), battleship warfare (chapter 5, the required level of financial intensity and organizational capacity are medium), and suicide terrorism (chapter 6, the required level of financial intensity is low but the required level of organizational capacity is high). Through these empirical case studies, the validity of adoption-capacity theory is demonstrated both qualitatively and partially quantitatively.

Horowitz's analysis is valuable as a complementary approach to traditional models that emphasize geopolitical factors. Even in his persuasive argument, however, some problems remain. One is that his model omits some variables that are likely to have a significant impact in his selected cases. For example, in the case of the nuclear diffusion process, as pointed out by some constructivists, factors like norms and identity might influence adoption policies of states like Germany and Japan. Their incentive to depend on the nuclear umbrella provided by the U.S. may be explained in the context of international norms and the feature of their domestic institution rather than by their adoption capacities.

The influence of norms on acquisition policy and doctrine is also shown in other cases like chemical and biological weapons, landmines, and carpet bombing, whether they are innovative or not. Likewise, in the context of the current diffusion of ICT, the requirement for precision-guided munition is explained not only by the efficiency of military operation but also by normative aspects of human life. Although it is difficult to deal with factors like norms in a statistical model, the relationship between his argument and the norm hypothesis is left to be considered.

Another factor often referred to as inseparable from innovation diffusion is economic and industrial trend. Although this aspect is partly considered as a matter of financial intensity by dealing with GDP, material production data, and industrial characteristics of each country, the reality is a little bit more complex because the mechanism of political economy might determine the patterns of domestic distribution of financial resources. In other words, although the economic and industrial level of a given state is an important index in indicating the state's potential capacity to adopt technological innovation, it does not show the state's practical capacity to do so.

It is also important to examine the validity of the author's argument in the ongoing context of the diffusion of ICT. The United States has accelerated military technological innovation based on ICT and changed its military doctrine since the late 1980s under severe fiscal pressure and the declining Soviet threat. The first problem here is how to interpret why the U.S. adopted this strategy which puts relative weight on research and development (R&D). At the time of the adoption of this strategy, the U.S. Department of Defense (DoD) and the Congress considered the investment as a cost-efficient measure because developing and deploying expensive but sophisticated high-tech equipment would enable them to slim down the military structure while maintaining the required military capability, leading to total cost reduction. This indicates that while financial intensity determines the capacity of states to adopt innovation, it also promotes investment to adopt innovation in the context of strategic selection and concentration under austerity.

Financial matters may also change the first mover's intention, in this case, that of the U.S., to control the process of diffusion. Contrary to the initial idea, the cost of high-tech equipment has strained the financial resources of the DoD. Under such circumstances, the DoD and the Congress are not only cancelling some acquisition programs that are too expensive, but are also trying to reduce the unit cost of equipment

by partially promoting its diffusion through exports of high-tech equipment and international cooperation in R&D programs.

Under this condition, the late adopter's intent of bandwagoning, referred to as one of the alternatives for states that do not have enough financial intensity or organizational capacity to adopt innovation, also needs to be reconsidered. A series of U.S. military operations since the end of the Cold War have demonstrated the utility of high-tech weapons to other countries and enhanced their incentives to build up such an innovative military capability. But at the same time, this kind of strategy which depends heavily on sophisticated high-tech equipment has increased financial burden and technological uncertainty not only for the U.S. but also for late adopters. On the one hand, in this case, the required financial intensity and technological capability are very high when late adopters decide to adopt innovation on their own. But on the other hand, even if they intend to bandwagon with the U.S., this could be a costly choice since they are required to import expensive equipment from the U.S. in order to enhance interoperability between the allies. It is not simply a matter of strategic choice, but of political economy because it affects the international competitiveness of industry, domestic employment, and the country's economy as a whole.

Put simply, although the value of this book is to offer a coherent and generalized perspective of how financial intensity and organizational capacity influence the adoption process, its simplicity is likely to cause some difficulty in interpreting cases including the ongoing diffusion process. It is necessary to accumulate more detailed case studies in order to judge the validity of Horowitz's adoption-capacity theory. But needless to say, under the recent economic recession and fiscal pressure, this book will offer an important springboard for further discussion both in academic and policy contexts.

Bibliography

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