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Economic Security in the Indo-Pacific: Perspectives from the Region

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For more than 40 years, KEI has been promoting dialogue and understanding between the United States and the Republic of Korea through insightful and in-depth conversation and analysis. KEI draws on the expertise of its resident staff; provides a platform on which leading writers, thinkers and commentators from the United States, Korea, and third countries can share their research and opinions; promotes scholarship by commissioning and publishing original articles; and hosts public and off-the-record conversations among policy makers and opinion leaders.

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In an increasingly digital age, KEI is committed to expanding our virtual engagement. Through our blog, "The Peninsula;" video series, "Korea in Five"; and livestreamed and recorded events on a wide variety of Korea--and transpacific issues. We are able to connect with people from across the globe who are interested in Korea.

The U.S. partnership with the Republic of Korea is built on enduring values and interests, but it cannot be taken for granted. The bonds between the two nations are maintained through the efforts of diplomats, service members, scholars, students, artists, and everyday Americans and Koreans. KEI is dedicated to contributing to this undertaking—helping to ensure a safer and more prosperous world.

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Preface

The Korea Economic Institute (KEI) is pleased to issue Vol. 1, Issue 3 of its new flagship journal, Korea Policy. Our new journal carries forward the objective and spirit of KEI's previous publications, the Academic Paper Series' (APS) On Korea publication, and the Joint U.S.-Korea Academic Studies publication. Like our previous publications, Korea Policy identifies and explores the array of security, economic and political issues and policy trends related to Korea and the U.S.-Korea alliance. The journal offers academically rigorous and policy-relevant research.

Korea Policy papers are written by academic scholars and policy experts from the United States, South Korea, and around the globe. The objective is to provide opportunities for recognized specialists and new voices to present fresh research and innovative thinking on Korea, the region, and related international issues. Each issue covers a broad, unifying theme and is arranged into two sections: One section covering various states' perspectives and another section of more Korea-focused articles, all organized under the same broad theme.

Before publication, the articles in the first section are presented as working papers as a part of KEI's New Academic Symposium panel series, run as hybrid events in partnership with universities around the country. The Korea-focused articles in the second section are presented as part of our Korea Policy series at KEI's Washington, DC office.

The papers in Vol. 1, Issue 3 exemplify the breadth and depth of policy issues relevant to Korea and the U.S.-Korea alliance. They are original pieces written exclusively for this issue over the last six months. KEI distributes the final publication to individuals in governments, the private sector, policy institutes, and educational communities around the world, and features the digital publication on the KEI website for the broader public.

Contributions in this issue of theme: Economic Security in the Indo-Pacific: Perspectives from the Region. The first section explores the U.S., Chinese, South Korean, and Japanese perspectives on and approaches to the concept of economic security. The second section offers more Korea-centric analysis, specifically on South Korea's place in the global semiconductor industry in an age of economic security; South Korea's evolving energy and critical minerals policies; and North Korea's view of economic security amid U.S.-China competition.

For over 40 years, KEI has produced objective and informative analyses and highlighted important policy research on Korea. I hope you find this inaugural volume of Korea Policy to be a useful contribution.

Kathleen Stephens
President and CEO
Korea Economic Institute of America
December 2023

Section 1

Economic Security from Multiple National Perspectives

The Political Economy of National Security: Perspectives from the United States, Japan, Korea, and China

By Stephan Haggard

In the last decade, the trade policy agenda has shifted with remarkable rapidity. The high Cold War was accompanied by a strategic embargo on the Soviet Union and China. Detente loosened those restraints on trade and investment as engagement was seen as advancing broader political objectives with both countries. For most of the postwar period, the politics of trade centered largely on writing new trade rules—multilaterally, regionally and in bilateral free trade agreements—and negotiating how barriers to closer integration would be reduced. The agenda of such negotiations naturally shifted over time, moving from a focus on trade in goods to a variety of new issues: trade in services, intellectual property, digital trade, and the complex of issues surrounding foreign direct investment. And these negotiations were not without conflict. American protectionism and unilateral trade measures tested relations with alliance partners, and particularly in Asia. But outside of specialized regimes dealing with export controls and scattered use of sanctions for targeted purposes, security calculations were largely implicit. An open world economy, buttressed by multilateral institutions, was seen as advancing US grand strategy in Europe, in East Asia and with the developing world more generally.

Such assumptions are increasingly qualified. More and more, the trade policy agenda not only intersects with security issues but is driven by them. No one factor can explain this change; many are at work. The weakening of multilateralism is clearly one. Momentum toward liberalization has long shifted from the WTO to regional and bilateral agreements where geostrategic calculations are likely to play a more significant role. Political tolerance for greater exposure to trade has also clearly declined in the United States, permitting other calculations to gain more weight. But there can be little question that the animating factor in the new political economy of national security is not only China's rise, but the fact that its economy has not evolved in the market-oriented direction that had been hoped. China is not only an

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emerging power with increasingly expansive security ambitions, but one with a statist economic system fundamentally at variance with the norms on which the postwar trading regime was built.

This collection of essays provides insight into the political economy of national security through four national lenses: the United States, its two Northeast Asian treaty allies Japan and Korea and China. For the United States, the new focus on the political economy of national security is clearly driven by China, the decision to engage in strategic competition, and the domestic policy debates—to some extent partisan—on what such a strategy should entail. For Japan and Korea, the calculations are equally if not more complex. The U.S. embrace of an Indo-Pacific strategy rests on strengthening relations with allies and partners. Tokyo and Seoul must not only manage their alliances with the United States but balance stakes they have in their economic relationship with China.

China's perspective, too, requires a strategic lens. We are prone to think of China as pursuing a policy course dictated by the security preoccupations of the leadership, and Xi Jinping in particular. However, China faces its own political and economic constraints, particularly those arising from an economic slowdown that is structural as well as cyclical. Moreover, decoupling across the Pacific is no more realistic for Beijing than it is for Washington.

Before we can tackle these distinctive national positions, however, we need a clearer sense of the policy agenda: how, precisely, trade and investment intersect with national security concerns. There are five distinct ways in which they do so, each raising somewhat different policy and political concerns. First is the extent to which the United States is politically capable of sustaining economic commitments that support its Indo-Pacific strategy. A second cluster of issues arises around the growing use of economic leverage to achieve political objectives – the weaponization of interdependence – and simultaneous efforts to limit such leverage. These countermoves include increasing the resilience of supply chains but also calls for greater self-sufficiency. These concerns are common across all four countries, and even mirror one another in predictable ways. A third somewhat distinct objective springs from the logic of denial that motivated the Cold War strategic embargo, although in notably shallower form. How do the United States and its allies limit exports and investments that increase the capabilities of rivals and competitors? A fourth issue is the appropriateness of industrial policy: the extent to which a wider state role is seen as necessary to maintain economic competitiveness in emerging technologies or to anchor national capabilities more broadly.

Finally, we need to consider international institutional questions: the frameworks that provide rules underneath strategic competition. Should the United States, its allies—and China for that matter—seek to revive existing multilateral frameworks? Or are altogether new understandings in order to manage the challenges that China poses?

The Political Economy of National Security

The debate about economics and security has been muddied by the fact that countries are simultaneously juggling multiple policy objectives that do not necessarily align into coherent policy packages. Separating these out, and underlining the policy challenges associated with different objectives, underscores the complexity of the economics and security agenda.

A first question that is particularly pressing for the United States centers on the political tolerance for increasing economic integration and the persistent challenges of protectionism. From the end of World War II well into the 1970s, U.S. imports as a share of GDP were less than five percent. Continuing trade liberalization and the entry of Japan, the East Asian newly industrializing countries into global markets and ultimately China pushed this up to nearly 18 percent by the time of the global financial crisis when the degree of economic openness stalled and even fell back slightly. Over this long period of deepening international exposure, current account deficits widened and employment in manufacturing underwent a secular decline, falling from over 25 percent in 1970 to around 10 percent today. Whether these developments are causally related is one of the great debates of our time, but one thing is increasingly clear. Economic analysis increasingly acknowledges that while the aggregate effects of trade remain positive, its distributional consequences are real.[1] These distributional costs of trade have become a focus of both political parties; indeed, the Republican party now appears more inward looking than its Democratic counterpart. Nonetheless, there is a growing concern in both parties with economic security defined most fundamentally in terms of the well-being of disadvantaged constituents.

Although not a central focus of the papers in this collection, the political economy of protectionism hovers over the security debate. Domestic politics impinges on the capacity of the United States to exercise leadership in the Indo-Pacific, visible in the inability of either political party to follow through on the Trans-Pacific Partnership up through the difficulties the Biden administration faced at the 2023 APEC summit over the Indo-Pacific Economic Framework.[2] At the same time, “security” has been invoked in support of trade

actions—with respect to steel, aluminum, and even autos—which do not appear to have any clear national security rationale, and may indeed harm the very alliance partners we are seeking to corral.

The second theme that runs through all four papers is what Farrell and Newman have called the weaponization of interdependence.[3] This agenda is wide-ranging, and in the United States has taken a variety of forms: from the use of trade policy instruments to generate leverage—most notably in the Trump administration's trade war—through the increasing attachment to sanctions as a foreign policy tool.[4] The use of these tools has been accompanied by a well-known debate about whether such sanctions "work" and what it means for them to work. Yet we are also seeing growing concern that such instruments may be subject to declining marginal returns. Target countries respond to such policies by diversifying, pursuing self-reliance and exploiting the massive international underground economy that has emerged in part to skirt sanctions efforts.[5]

With respect to China's behavior, the debate has focused around "economic coercion," and has now swept up a variety of U.S. allies and partners: Korea around the deployment of THAAD, the Philippines around South China Sea claims, Australia for its temerity in challenging China's COVID narratives, and European countries around their human rights preoccupations.[6] As with critics of the U.S. use of these tools, China analysts are arguing whether aggressive economic diplomacy has had the effect of attracting support—as some Chinese scholarsappeared to think—or whether it fuels blowback and new anti-coercion instruments.[7]

However, it is important to underscore that the weaponization of interdependence has two sides. On the one hand are efforts on the part of both the United States and China to manipulate their very extensive trade ties for leverage. The United States exploits its unique networks and capabilities, for example with respect to financial clearing and semiconductor design; China relies on the substantial dependence it has quite purposefully built among its trading partners.

But on the other hand, are the attempts—and again, on both sides--to reduce those vulnerabilities. A significant component of the current debate about economics and security centers on the means for accomplishing this objective, including through supply chain resilience. Multinational enterprises have always had to manage risk in the design of their international production networks, for example through diversification and make-buy decisions. What is new is the focus on political as well as economic risks. Among the strategies in

play are encouraging geographical diversification on the part of national firms—evident in the advocacy of China+1 strategies—onshoring (which is in effect import-substitution) or "friendshoring" through cooperation with allies.[8]

Nor is China standing still with respect to reducing its external risk. The theory of "dual circulation" could have been read as a badly-needed effort to rebalance the Chinese growth model towards increasing domestic consumption. Over time, however, it has devolved into an effort to sustain export growth while simultaneously limiting imports and relying to a greater extent on domestic production. More broadly, the entire Belt and Road Initiative (BRI) could be seen as a grand strategic counterpart to the U.S. focus on "allies and partners." As with the U.S. Indo-Pacific strategy and the efforts to "friendshore," China has pursued its own "neighborhood diplomacy," an early initiative of the Xi Jinping administration that is now ten years on.[9]

The policy issues with respect to such "de-risking" center on how to define which risks are tolerable so that desirable economic relationships are sustained, and underlying rules do not erode. For example, the Biden administration has sought to focus its efforts on supply-chain resilience on a handful of particular sectors and related objectives: public health and biological preparedness; information and communications technology, including semiconductors; energy, encompassing green transition objectives; and critical minerals and materials.[10] Nonetheless, the International Trade Administration identified no fewer than 2400 "critical" goods and materials under this nominally focused strategy.

A third strand of the economics/security tangle centers on export and investment controls, the objective of which is not leverage but denial: to prevent strategic competitors from acquiring particular capabilities. Andrea Viski's contribution on U.S. policy traces the evolution of such controls in the United States, which had their conceptual origins in the wide-ranging strategic embargos of the high Cold War. Subsequently, multilateral export control regimes narrowed the product menu to so-called dual-use goods, services and technologies and tied controls to military end-uses. For example, the product specifications hammered out in the Nuclear Suppliers Group identified inputs that could lead to the generation of fissile material or the production of nuclear weapons and committed members of the group to initiate appropriate licensing over those products.

As Veski also shows, however, the debate about export controls underwent a significant shift over the last five years. Of particular importance were the passage of the Export Control Reform Act (ECRA) and the Foreign Investment Risk Review

Modernization Act (FIRRMA) in 2018, which updated the rules governing the Committee on Foreign Investment in the United States (CFIUS). ECRA still focused on core technologies that can pose national security threats to the United States, but also introduced language underlining the importance of maintaining and even developing capabilities in strategic or foundational goods.

In describing the policy process, it is worthwhile to note the distinction between export controls and the investment screening process, both with respect to incoming and outgoing investment. In the end, however, the motives of these controls are the same: to assure that technologies are not weaponized. Although not discussed in detail in these papers, these motives will increasingly extend to negotiations—and protective actions--with respect to intellectual property as well. Complaints about the theft of intellectual property are by no means limited to purely commercial concerns but increasingly focus on theft of dual-use and military technologies, including through cyberspace.[11]

The main challenge for achieving these denial objectives is akin to the sanctions enforcement problem: how to control leakage given the incentives controls create for diversion. Let me cite an example that has attracted scrutiny in the economic press.[12] We can write a rule that denies a Chinese entity such as iFlytek, a partly state-owned firm, access to Nvidia A100 chips. But will such control incentivize Nvidia to supply chips just shy of technical thresholds or iFlytek to purchase such chips on gray markets? iFlytek can also lease cloud computing services that run on Nvidia chips. Do we regulate or even restrict cloud services?

The answer is not sanctions nihilism: controls are always porous to some extent and raising costs to illicit purchasers might itself be a partial policy win. But sanctions and export controls do incentivize a growing parallel universe of trade, investment and finance. Particularly given the changed geostrategic environment, China, Russia, North Korea, and Iran tacitly cooperate by turning a blind eye to export controls or even purposefully assisting firms in circumventing them. At a minimum, effective controls require coordination among allies. Yet they may also rest on extraterritorial tools such as the Foreign Direct Product Rule—which effectively grants the United States the power to control exports that embody certain American technologies--or the imposition of secondary sanctions on uncooperative rivals.

A fourth basket of issues centers on a significant intellectual shift: a reconsideration of the merits of industrial policy. East Asia was a pioneer in open-economy industrial policy, an approach that combined selective support for manufacturing with broadly export-oriented growth strategies.[13] This

developmental state approach fell out of favor as economies became more open—in part because of foreign pressure—and the costs of industrial policy were seen to outweigh the benefits. More recently, however, industrial policy has witnessed a renaissance among the advanced industrial states.[14] The Biden administration's Inflation Reduction (IRA) and Chips and Science Acts (CHIPS Act) increased public investment in green energy, semiconductor research and even production. As June Park shows in her contribution on Korea's future industries, U.S. trading partners have followed suit, not simply by emulation but out of competitive concerns. Audrye Wong shows that China's commitment to industrial policy has followed a pattern quite different from Japan and Korea. Rather than industrial policy receding in the face of continued market-oriented reforms, China has embarked on a giant U-turn, moving away from its commitment to reform and opening and toward greater state and party intervention in the economy.[15]

It is beyond this collection of essays to debate the merits of such interventions, and the authors take somewhat different views. Can public investments be efficient or are they necessarily tainted by rent-seeking or government error? How can industrial policies be designed to incentivize firms to greater innovation and productivity? However, two policy points are worth underlining about the industrial policy agenda. The first is that these efforts are increasingly cloaked in a national security rationale. Nowhere is this more clear than in China where securitization and "civil military fusion" have become defining characteristics of the country's national security state.[16] However, this is true of recent efforts in the United States, Japan and Korea as well. The second question raised by the resurgence of industrial policy is how to manage the conflicts such policies can generate. Although many policies are relevant here, the proliferation of subsidies, the tendency for them to generate mimicry and the badly fraying WTO subsidies regime deserve mention.[17] Although these issues are most clearly in evidence with respect to the U.S.-China trade war and Europe's growing attention to the challenge, they have also arisen among the advanced industrial states as well.

The possibility that strategic competition will generate economic races-to-the-bottom segues naturally to the final cluster of issues where economics and security intersect: the role played by international and regional organizations and the effort to craft rules of the road. China's emergence on the world economic stage was capped by its entry into the WTO, which was seen as placing important restraints on Chinese economic policy. Since that time, the WTO has suffered a long slow decline, first through the inability to negotiate a conclusion to the long-running Doha Round and more recently because of debilitating conflicts over the dispute settlement process. WTO commitments

remain intact, but its inability to manage emergent trade policy conflicts with China is increasingly clear and trade policy action has long shifted to regional, plurilateral and bilateral agreements. The rise of national security considerations not only makes it more likely that such groupings will play a central role in world trade, but also imbues them with a competitive quality.

Will Asian-only trade agreements such as the Regional Comprehensive Economic Partnership (RCEP) shape trade relations in the Indo-Pacific, or will initiatives spearheaded by the advanced industrial states carve out meaningful roles: the Trans-Pacific Partnership (TPP) and its successor the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the Quad, or the Indo-Pacific Economic Framework (IPEF)? Do Chinese-led initiatives such as BRI provide global public goods or do they embody competing economic norms and security ties that are inimical to Western interests? Not surprisingly, these questions about appropriate regional frameworks come up in all four of the contributions to this symposium. Of particular interest is whether and how U.S. allies in the region might cooperate on the expansive security agenda just outlined: to anchor alliance relations in expanded economic ties; to exercise leverage collectively; to coordinate around export controls; and to foster innovation.[18]

National Perspectives I: The United States and Its Allies

This framework helps locate the four papers that follow and places them in a larger context. Andrea Viski grounds her approach to the United States around the evolution of export controls. She notes the origins of these policies in the multilateral export control regimes and UN Security Council Resolution 1540, which mandated controls to limit proliferation risk in the wake of 9/11. She then focuses on the groundbreaking statutory changes in 2018 that reformed the export control process and delineated emerging technologies that warranted scrutiny and oversight. She argues these new laws broke the link to specific military end-uses since the ultimate value of such technologies for military purposes "is, in many cases, unknown, vague or in flux." Clearly, security considerations were paramount, most notably in the targeted export controls rolled out by the Biden administration in October 2022 and October 2023.[19]

A distinctive feature of Viski's contribution is her focus on the fifth agenda outlined above: not simply on export controls but the challenges of coordination. She outlines how the United States has been forced to think in terms of multilateral frameworks to accomplish export control objectives because of the challenges of leakage, and not only from hostile actors but from allies as well. Among the initiatives she outlines are the U.S.-EU Trade and Technology

Council (TTC), whose stated objective includes "strengthening our technological and industrial leadership, boosting innovation, and protecting and promoting critical and emerging technologies and infrastructure."[20] In the Asia-Pacific, these efforts have centered more on supply-chain resilience through the Indo-Pacific Economic Framework. However, Viski documents the aggressive U.S. diplomacy to align allies with its export control agenda, in part through the shadow of U.S. extraterritorial reach provided by the Foreign Direct Product rules.[21]

Kazuto Suzuki focuses his attention on Japan's effort to pursue a "derisking" strategy, and particularly the passage of the Economic Security Promotion Act in May 2022. He emphasizes that Japan's derisking strategy is not only or even primarily about economic considerations, such as how supply chains might be disrupted by exogenous shocks. Rather, it is about politics, "aimed at reducing the risk of states trying to exert political pressure by using their economic relationships as power between states, in other words, by stopping trade in certain goods as a means of international politics." The introduction of this agenda is surprisingly recent in Japan, with heightened concern emerging in the wake of conflicts around the Senkaku/Diaoyu islands and the Chinese threat to retaliate by limiting rare earth exports.

Suzuki makes an interesting conceptual contribution by noting how derisking resembles deterrence, which in turn can be achieved by either defense—through reducing dependence—but also through punishment or the leverage strategies outlined above. The legislation defines supply-chain resilience explicitly in terms of avoiding overdependence on particular suppliers but widens the concept to include protection of critical infrastructure—expansively defined—and critical information that could have adverse security consequences. As with the paper on the United States, the contribution on Japan closes with important institutional issues. Coordination is one way to lower the risk of coercion, and Suzuki notes the costs of a WTO which has been missing in action. Suzuki also underlines the discussion initiated by the EU around "Anti-Coercion Instruments" that are of interest to middle and smaller powers facing constraints from China.

June Park's analysis of the Korean case focuses on future industries, with an emphasis on semiconductors, and thus provides a compelling example of industrial policy as national security policy. Even more than in the Japanese case, Park portrays Korean developments as a response to pressures within the alliance. These include efforts on the part of the United States to secure greater inward investment in the semiconductor industry in the early Biden administration and its more systematic pursuit of industrial policy in the IRA

and CHIPS Act. Both pieces of legislation generated conflict with Korea by making subsidies conditional on domestic production in the United States and thus diverting Korean investment away from the home market or other regional partners. She walks through three pieces of legislation in some detail: the KChips Act, which focused on tax breaks to the industry, the Act on Protection of Industrial Technology (ITA), intended in part to prevent leakage of intellectual property, and a more recent and expansive Advanced Industries Act which targeted innovation in sectors ranging from displays, to batteries, biopharmaceuticals, nuclear power and robotics. She argues that while the Advanced Industries Act was targeted more narrowly on the stability of supply chains the ITA covered technologies that may have a more foundational impact on growth and national security. A key takeaway from the Korean case study is not only that U.S. policy can generate conflicts with allies, but also how they may respond with industrial policies of their own. The question looming over this case study is whether the advantages of greater resilience and capacity outweigh the potential for inter-allied competition and protection, and how those gains might be realized collectively through initiatives such as the Chip-4 alliance among the United States, Japan, Korea and Taiwan.

National Perspectives II: China under Xi Jinping

Audrye Wong's contribution on China had the most daunting task because of the extent to which economics and security are interwoven in Chinese political narratives. Following Mao's death and the initiation of reform and opening under Deng, the Chinese leadership was preoccupied with buffering potential shocks associated with closer economic integration. Wong shows how those have concerns continued in Beijing's preoccupation with energy dependence and financial integration, about which the leadership remains extraordinarily cautious. Wong notes that Chinese discussions of economic security during the reform era were also always linked to national security in a broader sense. Chinese writings—drawing on long traditions of "self-strengthening" --emphasized that national power, including military capabilities, rested on an economic foundation.

At the same time, she underlines that Chinese commentary took a nuanced approach which recognized the strategic value of closer economic integration with the world economy. Such integration not only provided economic benefits but allowed China to capitalize on its rising stature, for example by increasing its leverage with trading partners. The core puzzle for China analysts is why the phase of optimism--in which economic reform, rapid growth and rising international status went together—devolved into a much darker and more threatening picture of the international landscape.

The United States is certainly one factor. Starting with Hu Jintao's turn to industrial policy, but accelerating under Xi Jinping, China's notion of economic security has been driven by the perception that the United States is pursuing a strategy of economic containment. According to Wong, this turn toward securitization has required some subtle but important doctrinal changes, away from the "development-first" policies of the Jiang Zemin era. In 2014, Xi Jinping signaled the new direction with his Comprehensive National Security Concept, which would take "security as the purpose, political security as the basis, and economic security as the foundation." The integrated development-security approach reached its apogee during the Fifth Plenum of the 19th Central Committee in October 2020, and is now linked to wider political objectives captured in catchwords such as "the strategic rejuvenation of the Chinese people with changes unseen in a century." Yet it is hard to see these developments as emanating from the United States alone; domestic concerns about political security also play a considerable role as well.

Wong identifies a number of components of the new strategy, some of which are well-known and others less so. The explicit turn to a new industrial policy, captured in "Made in China 2025" initiatives, marks a fundamental shift in government-business relations that has affected perceptions of China risk. In addition to the challenges posed by the theft of intellectual property,the massive subsidization of strategic sectors, and surplus capacity the turn to industrial policy has been accompanied by attacks on prominent Chinese firms that augur poorly for the perceptions of foreign investors. The punitive actions taken during the COVID-era against private firms also reflect a deeper concern about the ability of the Chinese private sector to exercise political leverage over the regime.

On the external front, the new industrial policy is explicitly motivated by concerns about the ability of the United States to strangle China's further economic advance through the chokehold it exercises over a number of key technologies, most notably semi-conductor design.[22] In the 14th Five Year Plan (2021-2025), the regime identified four broad categories of risk: those associated with industrial supply chains, food and agriculture, energy and resources, and the financial system. Wong shows, however, how purely commercial motives—staying internationally competitive—are tightly coupled to wider security objectives through "civil military fusion."

A particularly interesting finding from Wong's analysis is China's explicit use of trade ties for the purpose of generating leverage. Wong points out how China has self-consciously engaged in strategies of "deep coupling," ultimately exploited in the policies characterized by the United States and its allies as "economic coercion." Another interesting finding of Wong's research is the recent effort by the government to institutionalize the new national security agenda through a variety of laws. These include, among others, revisions of foreign trade and investment laws, the creation of an Unreliable Entity List, China's own Export Control Law, Rules on Counteracting Unjustified Extra-Territorial Application of Foreign legislation and an Anti-Foreign Sanctions Law. One possible purpose of these laws: to signal Chinese resolve and to provide policy instruments for deterring "anti-China" actions.

Concluding Thoughts

Segmenting the economics and security agenda is important because different objectives may collide. At the most encompassing level, the strategic as well as economic gains that the United States, its allies and China reap from closer economic integration are put at risk by the restraints on trade and investment that are motivated by security concerns. Efforts to exercise leverage, impose sanctions for political ends and tighten export and investment controls all throw sand in the wheels of global commerce and require continual reassessment.

But the costs of these measures are not simply one-off; they can set in train dynamic processes with unintended consequences. To cite but three examples, U.S. efforts to impose multilateral and bilateral sanctions against adversaries such as North Korea and Russia have contributed to a thriving global underground economy of illicit activities and sanctions evasion, facilitated in part by innovations such as cryptocurrency. Even among allies, sanctions can have perverse effects. Japan's effort to signal displeasure in an ongoing history war with Korea had the unintended effect of pushing South Korea to substitute for Japanese imports.[23] And U.S. policies to constrain Chinese trade practices, although warranted, appear to have pushed Xi Jinping to double-down on his industrial policy bets. The trade/security agenda is here to stay, but always requires critical scrutiny; these papers all contribute to that effort.

Endnotes

[1] An agenda-setting contribution was David H. Autor, David Dorn, and Gordon H. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," *American Economic Review*, 103, no. 6 (2013): 2121-68.

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The Evolving Landscape of U.S. Economic Security: The Confluence of Trade, Technology, and National Security

By Andrea Viski

Introduction

The notion of economic security has always intertwined with national security. The link between the two notions, however, has taken different forms, degrees, and contexts, characterized by geopolitical circumstances, national political climates, and technological and social development. Over the last two decades, the emergence of multiple revolution-enabling technologies – most of which have both civilian as well as defense-related end-uses – has impacted the degree to which economic security has come to the forefront of what countries consider to be their national security.

The United States, recognizing the threat to its economic security posed by numerous competitors in the race to advance emerging technologies with potential defense applications, has recently instrumentalized national security tools for the sake of economic security, and has gone as far as to equate the two notions.[1] In addition, the United States has repurposed trade tools and explored new tools to support economic security objectives. Following in the path of the United States, other countries have begun to reexamine their own conceptual basis for economic security and the tools to maximize it.

This paper examines the current evolution of economic security discourse to demonstrate the implications, challenges, and shortcomings of U.S. economic security tools, and the catalyzing impact of technology. While component economic security considerations are broad and encompass issues from natural disaster planning to cybersecurity, this article focuses specifically on the impact of trade and technology in the economic security context.[2]

The paper discusses the main influences and features of U.S. economic security policy as it relates to trade, technology, and the security of the supply chain. The following sections of the paper include evolving notions of the dual-use concept, the need to manage and respond to technology flows with more effective

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strategies, and new foreign policy efforts and tools to strengthen economic security. The paper focuses on the trends forging the path for the United States to define economic security so closely with national security, and in exploring these factors, delineates how the United States has implemented policies and adopted, reoriented, or created new policy tools designed to strengthen economic security. In particular, the paper will focus on the use of trade and investment tools, used in the context of national security – to strengthen economic security. The paper will also examine why the rapid evolution of emerging technologies has played such a defining role. Finally, the paper will examine the effectiveness of the U.S. approach to economic security and its challenges, and offer insights into how it can be strengthened in the future.

The Evolution of the Dual-Use Concept

The links between trade, technology flows, and security have come to dominate the latest era of U.S. national security policymaking. Enabling technologies – those that have driven radical shifts in capabilities and power – have historically also altered the balance of power in terms of security. The focus on competitiveness in enabling, emerging, foundational, transformative technologies – and any other number of monikers – has driven the United States to shift its focus on economic security as a fundamental, if not equal aspect of national security.

All of the technologies that the United States has defined as critical, emerging, and foundational are dual-use in nature. Examining the evolution and expansion of U.S. notions of the term dual-use reveals the progression and reasons for the increasing confluence of economic and national security. The U.S. Department of Commerce's Bureau of Industry and Security (BIS), which is responsible for licensing the exports of most U.S.-origin dual-use controlled goods in this sphere, defines dual-use as items with "commercial and military or proliferation applications."[3] "Traditional" notions of the dual-use concept identify goods, software, and technology in relation to their potential military end-use and control their trade based on technical specifications linked to that end-use. For example, control list specifications of the multilateral Nuclear Suppliers Group (NSG) export control regime traditionally identify the materials, equipment, software, and technology that can contribute to a uranium enrichment facility, such as uranium isotope separation equipment and components, heavy water production plant related equipment, test and measurement equipment for the development of nuclear explosive devices, and others.[4] The underlying premise of most controls since the creation of modern trade controls has been their ultimate end-use in a concrete, identifiable, conventional or Weapons of Mass Destruction (WMD)-related military end-use.

A monumental shift in the focus and priorities of the dual-use notion and their convergence with the economic security discourse occurred in 2018 with the U.S. Congress passing the Export Control Reform Act (ECRA) and the Foreign Investment Risk Review Modernization Act (FIRMA). ECRA introduced the notion of competitiveness to the dual-use concept, stating, "The national security of the United States requires that the United States maintain its leadership in the science, technology, engineering, and manufacturing sectors, including foundational technology that is essential to innovation. Such leadership requires that United States persons are competitive in global markets," and continued the emphasis on technology, noting that export controls "should be tailored to focus on those core technologies and other items that are capable of being used to pose a serious national security threat to the United States and its allies." In addition to introducing the notion of competitiveness to the purpose of trade controls, ECRA further called on BIS to lead an inter-agency process to identify both emerging and foundational technologies, ultimately lumped together to be classified as "Section 1758 technologies," to be controlled.[5]

Pursuant to ECRA, in 2018 BIS published an Advanced Notice of Proposed Rulemaking (ANPRM) seeking public comments on criteria for identifying emerging technologies, which was followed by a similar exercise on foundational technologies. The ANPRM delineated 14 broad emerging technology areas and their subsets where input was sought to identify controls:

1. Biotechnology
2. Artificial intelligence (AI) and machine learning technology
3. Position, Navigation, and Timing (PNT) technology
4. Microprocessor technology
5. Advanced computing technology
6. Data analytics technology
7. Quantum information and sensing technology
8. Logistics technology
9. Additive manufacturing.
10. Robotics
11. Brain-computer interfaces
12. Hypersonics
13. Advanced Materials
14. Advanced surveillance technologies

ECRA and the subsequent inclusion of other technologies are key to understanding the shift in how the U.S. defines economic security discourse, because the concrete and ultimate military end-use of these technologies is, in many cases, unknown, vague, or in flux. While new controls established under Section 1758 controls have been established in relation to concrete military end-uses, the criteria for their definition need not be distinctly tied to that. In particular, the criteria to define new controls are: 1) The development of emerging and foundational technologies in foreign countries; 2) The effect export controls may have on the development of such technologies in the United States; and 3) The effectiveness of export controls on limiting the proliferation of emerging and foundational technologies in foreign countries of concern.[6] These criteria make it possible for controls to be imposed for reasons of competitiveness, supply chain, and defense-related end-use, rendering ultimate considerations of dual-use to necessarily expand beyond traditional definitions and purposes.

The shift towards expanding the dual-use concept reached a defining point in October 2022, when the U.S. implemented new export controls on advanced computing and semiconductor manufacturing items to the People's Republic of China.[7] While such items have military applications, these new controls moored the dual-use notion further into the realm of competitiveness and strategic stability.[8] These controls, in contrast to most previous export controls, were done outside of the multilateral export control regime structure, and imposed on one direct target, China, unilaterally by the United States. While couched in language referencing military end-uses of semiconductor technology, the new controls squarely expand the national security interest to encompass protecting U.S. economic and technological power – thus converging technology, trade, and national security.

The Challenge of Intangible Technology Flows to Economic Security

Managing, controlling, and protecting technology is challenging because flows are difficult to track, uncover, and enforce. Whereas tangible goods move from Point A to Point B – in the export context, if it is a controlled item, with an export license, customs and shipping documents, and more, technology can spread through both tangible and intangible ways. It can be stored and then sent through a USB stick, software, or blueprints can be shared; but it can also be transferred through teaching, training, discussions, on the job learning, and a myriad of other situations that are difficult to track. Policy-makers' toolbox to deal with intangible technology transfers is therefore somewhat different, and must evolve in a different way, than for tangible transfers – through export controls, surely, but also through visa vetting schemes, awareness-raising to control internal compliance culture, and, as will be discussed later in this paper, screening and controls on foreign direct investment.

In the 2017-2021 U.S. Department of Commerce's Strategic Plan, the first operative action is to enforce the nation's trade and security laws, drawing from the priority of ensuring security through the domestic production of technology and essential products.[9] The nature of technology flows and the challenge of trying to establish control measures to protect domestic technology innovation, squarely places the need to manage intangible technology flows at the heart of U.S. economic security priorities.

But managing and controlling technology flows has always been at the forefront of security – has anything fundamentally shifted in the relationship between technology flows, trade, and national security? The answer is yes – insofar as it concerns the move towards unilateral protection measures over domestic technology production from a competitiveness angle.

Around 2004, the United Nations Security Council passed Resolution 1540 (UNSCR 1540) mandating that all UN Member States "take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery," in part as a response to both the September 11 terrorist attacks as well as the discovery of the A.Q Khan proliferation network, and the risk that terrorists could acquire and use WMD.[10] Though this resolution appears far removed from current discourse over economic security, it set the stage for countries to be able to implement controls over materials, equipment, and technology that could be used for a WMD-related military end-use. While key technology holders had already been coordinating controls on certain technology exports through multilateral export control regimes, UNSCR 1540 broadened the responsibility globally, with all UN Member States having to implement controls over technology that could end up with a WMD-related end-use. The focus was squarely on a multilateral, global approach, and the threat: non-state actors.

With rifts between Security Council members spilling into the export control regimes and affecting consensus-based decision-making within them, the ability of these multilateral structures to keep pace with the new threats of emerging technologies and their potential security-related applications faltered.[11] And around 2018, with the passage of ECRA, though the official U.S. policy stated that any new controls on emerging technologies would be sought ideally, and first, within the multilateral regime structure, U.S. policy-makers did begin to publicly disclose that barring the ability to do so, the U.S. would proceed unilaterally if deemed in the national security interest.[12]

And therefore, two parallel developments were taking place: First, rapid developments in key emerging technology areas, potentially raising both security and competitiveness threats, and second, the increasing inability to manage these threats in an effective and swift manner at the multilateral level. Throw into the mix the difficulties innate in managing and/or controlling technology flows, and the U.S' policy answer has been to increasingly employ unilateral measures to protect national technology production – in the interest of ever-conflated economic and security.

This approach – and the justification of economic security as part and parcel, if not equated, with national security – was definitively revealed as a central guiding influence of U.S. policy with the unilateral 2022 export controls on semiconductor manufacturing equipment. As explained in the previous section, the new controls restrict the People's Republic of China's (PRC's) ability to purchase and manufacture certain high-end chips and were passed in order to "protect U.S. national security and foreign policy interests."[13] The U.S. approach was a direct response to the two developments noted above, applied in the specific case of efforts to thwart Chinese advances in semiconductor technology and manufacturing development. First, the U.S. was worried about China and semiconductors for a number of reasons, expanding beyond security and supply chain protection to economic and technology competitiveness. Second, the U.S. had no means of responding through typical multilateral channels, such as through export control regimes or United Nations bodies.

This approach, in conjunction with diplomatic efforts to harmonize policies with like-minded countries such as Taiwan, the Netherlands, and others, and the accompanying economic security discourse sauntering into media, public, and policy discussions almost simultaneously – signals a shift from previous national security focused trade and technology policy to one where economics and security are uniform and together serve as justification for new legislation, policy, and enforcement in the trade and technology arena. Because former structures are largely no longer fit-for-purpose for the distinct trade and technology challenges the U.S. faces, economic security priorities have led to new efforts, initiatives, and alliances to maximize the effectiveness of unilateral actions.

The Confluence of Investment Screening and Export Controls

Concerns over technology transfer risks have also led to adaptation of tools such as foreign direct investment screening to counter economic security risks in the United States. As previously discussed, the 2018 ECRA expanded the scope for export controls to counteract technology threats. Along with

ECRA, in 2018, the U.S. Congress passed the Foreign Investment Risk Review and Modernization Act (FIRMMA).[14] The law was passed to strengthen and modernize the Committee on Foreign Investment in the United States (CFIUS) to address national security concerns more effectively.[15] CFIUS is the interagency committee authorized to review certain transactions involving foreign investment in the United States, and FIRMMA expanded CFIUS's scope in terms of FDI screening. Importantly, FIRMMA and ECRA were passed both in 2018 and while they did not significantly alter the underlying structure of either CFIUS or the U.S. export control system, they tightened U.S. export control policies and the process for screening inbound foreign direct investment to counter threats to U.S. technological competitiveness and protect the U.S. supply chain in national security-relevant technologies.

Importantly, ECRA and FIRMMA established for the first time a direct link between export controls and inbound foreign direct investment controls. FIRRMA and its implementing regulations establish mandatory CFIUS filings for certain foreign investments. One category where such filings are now mandatory include certain transactions involving a foreign investment in a U.S. business that produces, designs, tests, manufactures, fabricates or develops a U.S. critical technology, which is defined as certain items controlled for export under various U.S. authorities including the following:

- U.S. Department of State International Traffic in Arms Regulations (ITAR);
- U.S. Department of Commerce Export Administration Regulations (EAR);
- U.S. Department of Energy regulations regarding the export and import of nuclear equipment and material, as well as assistance to foreign atomic energy activities;
- U.S. Department of Agriculture regulations on the possession, use and transfer of select agent and toxins; and/or
- Emerging and foundational technologies designated under ECRA.

By defining critical technology this way, FIRRMA clearly links the responsibilities of CFIUS with those CFIUS member agencies that administer U.S. export control laws, especially the U.S. Department of Commerce. The expanded dedicated screening mechanism over inbound FDI adds to the U.S. economic security toolbox by precluding predatory investment practices - those that would counter U.S. interests – underscoring the confluence of economic and

national security. Additionally, the United States has begun to implement a new program for control over outbound FDI to entities involved in semiconductors and microelectronics, quantum information technologies, and artificial intelligence in China, Hong Kong, and Macau. While the details of the new program are yet to be published, it is clear from the use of both inbound and outbound investment FDI programs that the United States is increasingly asserting FDI-related policies to protect sensitive technology from being exploited and used against U.S. interests.[16]

The U.S. Economic Security Toolbox

To keep up with the complexities of protecting national competitiveness in dual-use technologies and ensure control over its critical supply chains, the United States has taken an assertive posture by reorienting and adapting existing policy tools as well as developing new ones. New tools, for example, include foreign policy diplomatic efforts and new frameworks as well as the creation of new guidance, policies, and authorities within the government and resources directed to support them. Other tools include linking export and investment controls and taking a multi-prong approach to new trade and technology threats. This section will explore some of the most important tools in the U.S economic security toolbox.

Economic Security as a Basis for New International Frameworks

In a world where existing multilateral structures are increasingly no longer fit for purpose with pressing and fluid challenges to security and competitiveness, new solutions must be found. The U.S., in the context of securing its supply chain and protecting its foreign policy interests, has rallied like-minded partners to espouse shared emphasis on economic security and align policies to that effect.

Starting with the presidential administration of Joe Biden, the U.S. initiated a number of new trade and economic initiatives with global partners to cement economic security priorities. At the 2022 United States-European Union (EU) Summit, the U.S., the European Commission, and the European Council announced the formation of the U.S.-EU Trade and Technology Council (TTC), whose objective is to "promote U.S. and EU competitiveness and prosperity and the spread of democratic, market-oriented values by increasing transatlantic trade and investment in products and services of emerging technology, strengthening our technological and industrial leadership, boosting innovation, and protecting and promoting critical and emerging technologies and infrastructure."[17] The Council has served as a conduit for discussing and

promoting alignment of economic security objectives, and pushing the economic security "agenda" insofar as it concerns the EU ensuring its own attention, interests, and emphasis in this area in harmony with U.S. measures. The Council runs working groups which focus on issues like export controls, investment screening, global trade challenges, and more. The working groups are aiming to develop concrete outcomes; some examples to date include joint technical specifications for key critical and emerging technologies, joint early warning mechanism for semiconductor supply chain disruptions, and more.

In addition to working with European Union partners, the U.S. launched the Indo-Pacific Economic Framework for Prosperity with Australia, Brunei Darussalam, Fiji India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, and Vietnam. This framework aims to "advance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness," and structures negotiations in several pillars, including supply chain security and trade.[18] In 2023, through negotiations within the framework, a supply chain agreement was proposed, whose goal from the U.S. side sits squarely within its economic security priorities: "to ensure that American workers, consumers, and businesses benefit from resilient, reliable, and efficient supply chains." Under the proposed agreement, framework partners coordinate to identify potential supply chain challenges in order to avoid disruptions and also collaborate to increase "the resilience, efficiency, productivity, sustainability, transparency, diversification, security, fairness, and inclusivity of our supply chains." The proposed agreement further will create a Supply Chain Council as well as a Supply Chain Crisis Response Network.[19]

Beyond these structured new frameworks and initiatives, the U.S. has sought alignment with like-minded countries to increase the effectiveness and power of its semiconductor export controls on China. This strategy represents a shift from working within multilateral export controls regimes first to align policy with regime members, as surely it would have been impossible to do so given the regimes' membership, consensus-based decision-making, and other procedural and administrative boundary conditions. Following the new U.S. controls in October 2022, the Biden Administration officials launched an energetic diplomatic efforts for key semiconductor suppliers and technology holder countries to align their policies and also adopt controls on China.

In March 2023, the Netherlands' trade minister outlined the new measures for semiconductor-related export controls. Based on the new controls, Dutch companies will have to apply for licenses to export certain technologies and products outside of the EU. The proposed restrictions target advanced systems which make some of the most powerful chips, including lithography tools made by Dutch

company ASML. From July 2023, Japan imposed controls on 23 types of equipment, ranging from machines that deposit films on silicon wafers to devices that etch out the microscopic circuits of chips that could have military uses.[20] And almost immediately following the U.S. export controls in October 2022, Taiwan pledged to align its export controls policy on the items the U.S. now controls to China.[21]

While the effectiveness of the controls themselves, even thus aligned, remains to be seen in whether China can manage to advance its semiconductor technology capabilities notwithstanding the new export curbs, these U.S. diplomatic and policy efforts signal a key new feature of its economic security policy. The semiconductor area is the first example of a technology where the U.S. has clearly decided that ad hoc policy alignments with like-minded countries and outside of existing multilateral structures is the most effective way to protect its economic security interests. This strategy can be expected to proceed and apply to other technologies in the future and will form an integral part of U.S. economic security foreign policy for years to come.

New Federal & State Authorities and Mandates

The U.S. has established a flurry of new agencies, committees, and tasks forces, together allowing for a comprehensive inter-agency process for pursuing U.S. economic security objectives. At the Executive Level, a new inter-agency Fast Track Action Subcommittee on Critical and Emerging Technologies was established by the National Science and Technology Council in 2020 to "identify critical and emerging technologies to inform national security-related activities." In 2022, the subcommittee, the Council, and the Office of Science and Technology Policy updated the list of Critical and Emerging Technologies in line with the 2021 Interim National Security Strategic Guidance which prioritized democratic values, protecting economic prosperity and opportunity, and protecting security.[22]

In January 2023, the Department of State established the new Office of the Special Envoy for Critical and Emerging Technology. This new office was created because, per the official press release, the "constellation of critical and emerging technologies reshaping the world is now an integral part of the conduct of U.S. foreign policy and diplomacy."[23] In February 2023, the Justice and Commerce Departments announced the creation of the Disruptive Technology Strike Force, that pools expertise from different federal and state agencies, including the FBI, Homeland Security Investigations (HSI), and U.S. Attorneys' Offices, to target illicit actors, strengthen supply chains, and protect critical technological assets from being acquired or used by nation-state adversaries.[24] These new agencies come as an addition to other existing supply

chain and technology focused committees and offices, such as the Department of Commerce's Emerging Technology Technical Advisory Committee, set up subsequent to the 2018 ECRA, and others in the Department of Defense, Department of Homeland Security, and others.

Conclusion: The U.S. Economic Security Vision and the Future

In light of increasing threats to technology competitiveness and supply chain security from global adversaries, the U.S. has shifted towards an alignment of economic and national security objectives. Through increased resources, vigorous diplomatic efforts, and new policy and enforcement tools, the U.S. has slowly crafted a comprehensive economic security approach. While the effectiveness of specific policies and efforts will only come to light once it is clear whether their stated objectives and impact are reached, there are a few areas to look out for, especially as other countries and regions consider forging their own unique economic security policies.

One such area concerns the risks versus benefits of trying to manage and control the spread of technology, for example, as the U.S. has tried to cut off China's access to advanced computer and semiconductor manufacturing equipment through targeted export controls. Beyond considering if the controls, even with buy-in and alignment from international partners, will succeed in ultimately slowing down or stopping China's access to advanced semiconductor technology and manufacturing capability, it is worth further evaluating other potential effects of the policy. These effects include the position U.S. policies place other countries in vis-à-vis their own considerations of whether they wish to follow the U.S. outside of traditional multilateral frameworks, whether the policy causes China to double down on its efforts to acquire technologies it seeks, and reactive measures China may take in this regard. These considerations are important because, as previous sections of this paper have noted, the semiconductor controls are indicative what may be to come in terms of the U.S. approach to further technology and supply chain threats.

In addition, because of the importance of coordination and alignment of policies between the United States and other critical suppliers, it is essential for U.S. economic security efforts to consider the nuances and complexities of these countries' relationship with China. Like the United States, most allies have strong existing economic ties with China, and it is unrealistic to expect countries to "choose" or to cut off ties to China completely. Instead, the United States must focus on those chokepoint technologies where an impact of aligned economic security policies can be achieved.

Additionally, the further ultimate objectives are from traditional security concerns – and in particular WMD or conventional end-uses for particular technologies, in combination with existing multilateral obligations within UN or other frameworks – the harder it may be to get buy in from other countries on U.S. unilateral or plurilateral controls. For example, the United States, through capacity-building programs such as the State Department's Export Control and Related Border Security Program (EXBS) has worked with dozens of countries for decades to build and strengthen export control programs. Much of the justification and incentive for projects in this area stem specifically from helping countries meet their obligations under UN Security Council resolutions, such as UNSCR 1540 (2004). Without multilateral frameworks to rest on, diplomatic or capacity-building initiatives outside of the United States must identify new and effective incentives to receive alignment and buy-in for U.S. economic security objectives.

Further, it is not only in trade and investment where cutting ties with China can impact the effectiveness of policy objectives. Many countries – and the United States is perhaps the most significant example – benefit from the contribution of Chinese scientists and researchers in their companies and universities. Cutting ties through visa vetting and other programs – rightly for reasons of research security risks - has the potential effect of compromising the positive contributions brought about by that diversity. Decreasing trade and investment-related links and ties means that the United States must also think of policies to counteract, mitigate, or offset these potential consequences.

In navigating this new global landscape where economic security has come to the forefront of national priorities and international relations, the United States must focus on stakeholder engagement and communication on multiple levels in order for its policies to be successful. That means continued and strengthened transparency and collaboration with the private sector, in order to calibrate policies to balance security and competitiveness, as well as effective outreach and enforcement to maximize compliance. On the global level, the United States should continue to work with like-minded partners to find alignment on specific economic security areas where such alignment is necessary for effectiveness. The United States and the international community at large must consider the restructuring or reimagining of former multilateral structures to ensure that they are fit for purpose. How challenges posed by the confluence of technology, trade, and economic security are handled now are certain to define the future for generations to come.

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Japanese Economic Security as "Derisking"

By Kazuto Suzuki

Introduction

The term "derisking" has become a buzzword not only in the field of economic security but also in the discussion of international politics after Ursula von der Leyen, the President of the European Commission, the executive arm of the EU, commented that the EU should pursue "derisking" rather than "decoupling."[1] However, derisking does not clearly define what risks are to be addressed and by what means, or how they can be eliminated. It is only used as a convenient term in a political context, and it is not certain whether it is a useful term in the study of economic security.

This paper defines derisking beyond just the perspective of economic security, examines whether derisking defined as such is a useful term for analyzing policy, and considers what the Economic Security Promotion Act (ESPA) enacted in Japan in May 2022 means from the perspective of derisking.

What is Derisking?

In a 2023 speech, von der Leyen recognized that "President Xi essentially wants China to become the most powerful nation in the world" and cautioned against China becoming a key player in the international order. At the same time, she raised a number of issues, including: China's lack of effort to stop the war in Ukraine, and instead strengthen relations with Russia; the risk China will exert Russia-like pressure in Asia; the risk of human rights abuses in Hong Kong and the Xinjiang Uyghur region; and economic coercion against Lithuania.[2]

Von der Leyen stated the West's relationship with China should be derisked rather than decoupled from the perspective that a stable dialogue with China is necessary, even though China has power and ambitions to shape the world order and its behavior is inconsistent with European values. In other words, von der Leyen brought in the concept of derisking in order to maintain the path of dialogue, rather than to separate from China altogether. Derisking is thus a concept created to avoid decoupling.

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How, then, should derisking be defined? First, derisking means risk reduction rather than risk avoidance. In President von der Leyen's speech, when she refers to derisking rather than decoupling with China, it is generally assumed that she is assuming a certain level of risk will remain.

Second, while derisking is limited to the economic sphere, it is also aimed at reducing the possibility of states trying to exert political pressure on other states by using their economic relationships, notably by stopping trade in certain goods. Although as von der Leyen has said, many goods and services are "un-risky (or risk-free)," it is important to note that at the beginning of the COVID-19 pandemic, China, where the production of masks was concentrated, could not keep up with the demand for masks.[3] Many countries feared infection and worried about a shortage of masks. In response to the shortage, China used "mask diplomacy" as a diplomatic tool, in a way to stoke people's fears.[4] It is unclear what von der Leyen meant by "un-risky," but at least it is clear that even commodities that do not require high manufacturing technology are not risk-free.

Third, the risk, if any, of daily necessities such as masks is not so high because alternative production can be started in a short period of time and recovery from the shortage is relatively less difficult. This fits with the point made by Keohane and Nye in their discussion of the concepts of "sensitivity" and "vulnerability."[5] Sensitivity refers to the extent to which a state's economy is affected by external changes, while vulnerability refers to the degree to which it is able to recover from those changes. In the case of masks, sensitivity is high because of the heavy dependence on China, but vulnerability is low because of the relatively fast recovery from the impact. Conversely, Japan was severely affected when China suspended exports of rare earths to Japan in 2010 due to the Senkaku Islands dispute, and recovery was not easy.[6] Therefore, Japan's vulnerability was high. Nevertheless, efforts to reduce vulnerability, such as the ability to make hybrid car magnets without using rare earths by 2016 increased Japan's resilience to the supply chain.[7]

Fourth, while increasing the resilience of supply chains to reduce the sensitivities and vulnerabilities described above underlies derisking, it is not realistic to achieve resilience in all trade items. This would require reducing dependence on China for all items, which von der Leyen calls "decoupling." Therefore, it is necessary to select those items that are strategically important, i.e., those that are both sensitive and vulnerable, and work to reduce dependence on China. To do this, it is first necessary to determine which industries are strategic to the nation and to understand the full supply chain of those industries. However, such supply chains are adjusted on a daily basis in

the course of corporate activities and are the source of competitiveness for companies. If it becomes clear from which companies in which states they procure their inputs, their competitors may also procure from the same companies, making it impossible for them to maintain a competitive edge in terms of price and performance. Therefore, discussions about supply chains tend to be based on imprecise and incomplete data, such as the share of Chinese companies in the global market share, leaving unclear which companies are at risk in the supply chain.

Fifth, in order to proceed with derisking, it is necessary to analyze the supply chain of individual companies, as discussed above. Consequently, derisking at the level of government is different from derisking at the level of companies. For a state, trying to reduce its dependence on another risky state with which it has a strategically antagonistic relationship would require violating the economic rationale of procuring the best product at the lowest cost for the firm. For a company, it is difficult to act contrary to economic rationality, and if a company were to take measures such as relocating production or changing suppliers at high cost in the name of derisking, it would be unable to explain its actions to shareholders. Therefore, the government must make it clear that some actions must be taken, even at the expense of the company's profits, in order to derisk, and provide incentives to do so. Such measures can be a negative incentive in the form of regulation, or a positive incentive such as a subsidy. In either case, this strategy will be difficult to achieve unless companies are in sync with the derisking strategy.

Finally, economic risks are not limited to supply chain risks. Another risk could be the loss of market share of a home state's firms due to the increased competitiveness of other states' firms and increased dependence on other states due to technology outflows and technology theft. Therefore, in addition to preparing for cyberattacks, which are a channel for technology leakage, we must also be concerned about technology leakage associated with the movement of people (e.g., headhunting as in China's "Thousand Talents Program") and technology leakage through corporate acquisitions.[8] In the United States, the concern is not only about technology outflows, but also about investments in Chinese companies that will enhance the activities of those companies. A presidential decree was issued in August 2023 to regulate investment in China.[9] Although the recognition that the transfer of technology and capital through these economic means could be a security risk does not appear in von der Leyen's speech, such recognition is growing in the discussion about economic security in the United States.

Thus, taking the concept of derisking a little further, there are many measures that are difficult to implement in practice, and the difficulty of coordination between companies and governments stands out in particular. In the face of these problems, how can states make derisking possible? Japan provides one example.

Japan's Economic Security Promotion Act Shows Derisking

In Japan, the term "economic security" has been widely discussed after a group of politicians in the ruling Liberal Democratic Party (LDP), led by then LDP Secretary General Akira Amari, released its recommendations for the "Formulation of an Economic Security Strategy" in December 2020.[10] Based on these recommendations, the "Basic Policies for Economic and Fiscal Management and Reform 2021 was released in May of that year.[11]

The LDP proposal defines economic security as "ensuring Japan's independence, survival, and prosperity from an economic perspective," and outlines two means of achieving this: 1) "ensuring strategic autonomy" by strengthening the foundations essential for maintaining Japan's socioeconomic activities and ensuring that Japan is not overly dependent on other states; and 2) expanding areas in which Japan's presence is indispensable to the international community by "maintaining, strengthening, and acquiring strategic indispensability and acquisition."[12]

In order to realize these objectives, the report also states that the vulnerabilities of "strategic industries" will be identified and analyzed, and necessary measures will be taken to ensure their strategic autonomy and strengthen their strategic indispensability. In addition, five domains are designated as "strategic industries": energy, information and telecommunications, transportation, healthcare, and finance, and their respective risk analyses and vulnerability countermeasures are discussed.[13]

In the National Security Strategy approved by the Cabinet in December 2022, Japan's security challenges include "issues that have not necessarily been recognized as security targets in the past, such as weak supply chains, increasing threats to critical infrastructure, and the struggle for leadership over advanced technologies." The report explicitly states that the threat is that "some nations are trying to expand their own influence by economically coercing other nations through such means as restricting the exports of mineral resources, food, and industrial and medical supplies, as well as providing loans to other nations in a manner that ignores their debt sustainability."[14]

In response to such threats, the Japanese government has already passed the Economic Security Promotion Act in May 2022 and has taken various legal measures, which are again introduced in the National Security Strategy. First is the strengthening of supply chains. This means avoiding over-dependence on specific states and diversifying procurement to stabilize the supply of strategic goods. In particular, this aims for the development of semiconductor development and production bases to maintain technological superiority in emerging technological fields, as well as the stable supply of critical commodities such as rare earths. As a means of achieving these goals, a support system will be established, including the use of loans to help private companies strengthen their domestic production. Eleven items are designated as critical commodities, including antimicrobial agents, fertilizers, semiconductors, storage batteries, permanent magnets, critical minerals, machine tools and industrial robots, aircraft parts, crowd computing programs, natural gas, and ship parts. However, even for antimicrobial agents, only beta-lactam antimicrobial agents, which are 100% dependent on overseas sources for their raw materials, are specifically mentioned, and the specific commodities are expected to be narrowed down in the future.[15]

Second is the protection of critical infrastructure. The continuity of services provided by critical infrastructure is essential for the stability of the economic and social order. If such stability is disturbed by interference from other states and affects people's lives and property, it is a security issue. ESPA designates 14 areas as critical infrastructure, including electricity, gas, oil, water, railroads, motor freight transportation, ocean freight, aviation, airports, telecommunications, broadcasting, postal services, finance, and credit cards. In the construction and maintenance of critical infrastructure facilities that may affect human lives, the government reviews the plans submitted by the operators of these facilities for outsourcing maintenance and other services to external contractor and procurement of parts and other items necessary for these facilities. The purpose is to eliminate untrustworthy vendors and operators and reduce the risk of critical infrastructure being hijacked or otherwise attacked.[16]

Third, protection of data and information has become an important issue. In the past, the Specified Classified Information Protection Act stipulated the protection of data and information concerning important secrets related to defense security. Today, technologies related to security are becoming increasingly dual-use for both the military and civilian sectors, with private companies playing a central role in the development of such technologies, especially in the fields of artificial intelligence (AI), quantum computers, and robotics. These so-called emerging technologies are likely to be applied to improve military capabilities, and

maintaining technological superiority in emerging technologies is important for security. However, private companies do not have a confidentiality protection mechanism such as the Specified Classified Information Protection Act, and furthermore, there is a possibility of technological leakage as a result of exports to foreign states or the transfer of production bases. Moreover, there is a possibility of technology transfer, such as personnel involved in the research and development of emerging technologies moving to other states. Therefore, how to protect sensitive information on important technologies is both an economic and a security issue. Japan is currently considering the introduction of a security clearance system. In addition to this economic security context, Japan's lack of a security clearance system also makes it difficult to develop and procure technologies and equipment essential to its security, such as joint development of defense equipment with foreign states.[17]

Thus, Japan's ESPA represented a paradigm shift insofar as it was one of the first instances in the world of economic security legislation and the creation of a specific set of policies for it. Compared to other states, Japan's measures listed as economic security measures are basically defensive in nature. Since the objective is to counter the threat of economic coercion from other states, the measures that can be taken to protect one's own economic and social order, such as the strengthening of supply chains and protection of critical infrastructure, are available. However, security also requires tools to deter the actions of others and prevent conflicts by having the ability to counterattack or to have a certain level of offensive capability, which Japan lacks.

Another characteristic of the Japanese approach to economic security is that it focuses on preparedness against economic coercion but does not include unintended supply chain disruptions, such as those resulting from natural disasters. The United States, Europe, and other states, often strengthen supply chains in response to supply shortages due to a lack of manpower in distribution that occurred during the pandemic, or the shortage of strategic supplies as a result of factories not operating due to China's zero COVID policy. In contrast, the Japanese conception of economic security does not primarily address these unintentional events. Nevertheless, measures taken to strengthen supply chains to address intentional acts of economic coercion can also address unintentional distribution disruptions.

How to Prevent Economic Coercion

The concept of derisking in Japan assumes intentional coercion. It is important, then, to understand how economic coercion is used. This section examines the structure in which economic coercion is implemented.

Conditions under which Economic Coercion is Established

First, economic coercion is implemented when the party to be coerced is not only sensitive to disruption or coercion but also high vulnerabile to it. In other words, economic coercion is most effective when the coercing state has an overwhelming advantage in a particular item, which, when restricted, the coerced state cannot immediately recover from (either in the case of export or import bans). A prime example would be the oil shocks of the 1970s. As a result of the Yom Kippur War, Western states that were dependent on Middle Eastern crude oil were forced to change their support for Israel to a neutral or Arab-friendly stance after Arab states implemented a suspension of crude oil exports, thereby causing panic in Western states and wreaking social and economic havoc.[18]

From this, we can equate vulnerability with a high degree of dependence. If a particular state's degree of dependence for a particular item is high, the vulnerability of that item will increase. Therefore, reducing such dependence is of primary importance in order to promote derisking. Such dependence is more dangerous for highly strategic products such as crude oil, but at the same time, economic coercion can be effective temporarily even for general-purpose products. For example, as noted above, in the first half of 2020, when the COVID pandemic began, global demand for non-woven masks increased. China, which accounted for most of the production, could not keep up with demand and a global mask shortage occurred. This was not an intentional act of economic coercion, but because of China's overwhelming superiority at the time, it became an act of economic coercion by developing "mask diplomacy" as a diplomatic tool.[19] However, the economic coercion by China was only temporary, since a versatile product like masks was not so high in terms of vulnerability, as it was relatively easy to boost production and substitutes such as cloth masks were available.

Deterrence by Denial Against Economic Coercion

How, then, should Japan counter such economic coercion? First of all, if some states intentionally apply economic coercion, there are ways to work to influence such intent and to change their course of actions. In this regard, deterrence by denial may be applicable to economic coercion as well.

The central idea of derisking is a deterrence by denial strategy that aims to reduce the effects of economic coercion implemented by other states by reducing vulnerabilities and restoring resilience, so that the costs incurred by the other states are greater. Economic coercion is the use of a state's advantages to exert political pressure on a rival country, but its implementation

carries the risk that it may also negatively affect the state's own economy and reputation. For example, the suspension of rare earth exports by China to Japan in 2010 encouraged Japan to make rare earth-free products, leading to the development of a magnet that does not use rare earths in 2016.[20] As a result, China's advantage in this area was lost.

Possible means of deterrence by denial could include stockpiling strategic materials, diversifying sources of supply, developing alternative materials, and developing alternative products. Such measures would be appropriate policy responses to supply chain resilience in ESPA.

However, there is another means of deterrence by denial that is not included in ESPA. The "Coordination Platform on Economic Coercion," as outlined in the Joint Communiqué of the G7 Hiroshima Summit in 2023, to enhance joint assessment, preparedness, deterrence, and response to economic coercion, could be the basis for a mutual aid mechanism. Presently, though, it is not clear that this coordination platform would go beyond being a forum for information sharing. However, if other states subjected to economic coercion worked together with the G7 and other partners it would reduce the effects of an import suspension of a particular commodity. This was the case, for example, when China imposed economic coercion by suspending imports of pineapples from Taiwan in 2021. Japan and other friendly states actively encouraged Taiwan's pineapple imports, thereby reducing pressure on Taiwan.[21] This kind of mutual aid mechanism can be a mechanism for implementing a deterrence by denial by having a collective self-defense system against economic coercion.

Institutional Deterrence Against Economic Coercion

Japan's ESPA is certainly a derisking-oriented measure in terms of deterrence by denial. However, deterrence by denial is not the only way to reduce the risk of economic coercion. A second method is institutional deterrence, which utilizes existing international institutions. Institutional deterrence makes use of international institutions such as the World Trade Organization (WTO) to settle disputes. Institutional deterrence assumes both parties to the dispute are members of such institutions, in which case they are obligated to settle such disputes under international law.

The WTO's dispute settlement mechanism allows an aggrieved state to file a complaint if it believes another state is in violation of WTO rules. When a case is filed, a panel of third-party experts can be established to examine the case and render a decision. If the party bringing the complaint is dissatisfied, they may appeal to the Appellate Body, which is the final tribunal. If the report of the

Appellate Body finds that the actions were inconsistent with the WTO Agreement and the recommendations of the Appellate Body are not implemented, the complaining party can demand compensation. Countermeasures, which generally take the form of retaliatory tariffs against the offending state, can inflict substantial damage on a state that does not follow the recommendations of the Appellate Body.[22]

Such WTO dispute settlement mechanisms were thought to have a certain deterrent effect, but the deterrent effect has now largely faded. This is because the United States, which has been calling for WTO reform on the grounds that it has failed to take concrete steps against China's unfair trade practices, has refused to appoint senior members since the Trump administration, making it impossible for the WTO to hold an Appellate Body meeting and adopt a final report. Consequently, the WTO cannot mandate countermeasures. This U.S. attitude has continued under the Biden administration, and for the time being, the WTO's dispute settlement mechanism is unlikely to resume its functions.[23] In addition, in anticipation of the Appellate Body not convening, the tactic of leaving disputes unresolved by "empty appeals" to the Appellate Body by the losing party in the initial judgement by the panel also limits the deterrent effect.

In response to the dysfunction of the Appellate Body, the EU and other states have organized the Multi-Party Interim Appeal Arbitration Arrangement (MPIA). The MPIA is a system whereby an appeal against a panel decision of the WTO Dispute Settlement Mechanism is heard in the same manner as the Appellate Body by using the arbitration system in the WTO Agreement and the hearing rules of the Superior Committee.[24] Japan became a member of this MPIA in 2023.[25] In addition to the EU, China is also a member, which should have a certain deterrent effect against economic coercion conducted by China. However, the authority of the MPIA remains controversial, with only 19 states involved and the United States not a member. With the WTO incomplete, institutional deterrence is unlikely to function adequately.

Deterrence by Punishment Against Economic Coercion

In the field of security, deterrence is usually discussed mainly in terms of deterrence by punishment, but in economic security, it is not easy to control an opponent's economic coercion through this mechanism. Deterrence by punishment is intended to deter an opposing state by making it hesitate to act by showing that the targeted state can inflict great damage by retaliating in some way. Unlike in the military domain, where damage or costs can be calculated with greater accuracy (i.e. loss of life or territory), in the realm of economic security, it is difficult to calculate clear damages. This makes it difficult to determine what form of retaliation is appropriate.

The EU has proposed "Anti-Coercion Instruments" (ACI), which have not yet been legislated, but a political agreement is in the process of being reached.[26] The need for such measures was revealed by China's economic coercion measures against Lithuania based on Lithuania's use of the name "Taiwan" instead of "Taipei" when establishing an exchange association. China notified the EU that it would ban all products from Lithuania and all EU products containing parts and material from Lithuania, revealing the broad applicability and low predictability of China's economic coercion measures.[27]

Against this backdrop, the EU has recognized the need to implement the ACI. Governments have agreed to the Commission's proposal and are moving toward ACI legislation, which includes measures such as tariff enforcement; restrictions on trade in services, foreign direct investment, public procurement, import and export licenses, research programs and certain products; tighter export controls on dual-use items; and measures on intellectual property.[28] It is not certain to what extent these measures would have a deterrent effect, or what damage could be inflicted on the partner state if an ACI were actually implemented. However, by preparing such measures, it would be possible to exert a certain amount of pressure on the other party by demonstrating its ability and willingness to retaliate.

Crafting the right messaging around such deterrent measures is also critical. The basis for deterrence is to demonstrate the ability and willingness to act. In the case of ACI, it is even more important to demonstrate a willingness to take firm retaliatory measures against economic coercion.

By presenting such a message, countries will be able to influence the calculations of the other party. At the same time, it will be important to determine the proper proportionality. Economic coercion and countermeasures may escalate the conflict, and risk going beyond economic confrontation to military confrontation. To address this risk, it is important to determine the extent to which retaliation against economic coercion is proportional and escalation can be controlled. In this sense, messaging is also important for economic security.

However, a difficult issue in controlling escalation is to keep in mind that the political impact of economic damage differs between authoritarian and democratic states. A democratic state is threatened by the possibility of losing power in the next election if the other party imposes economic coercion, as the injured firms and consumers become dissatisfied and critical of the administration in power. On the other hand, an authoritarian state may suffer some economic damage, but the regime's oppressive measures will enable it

to contain domestic discontent and continue its acts of economic coercion. In this sense, the political regime of the other party must be fully considered when proceeding with derisking through deterrence by punishment.

In addition, deterrence by punishment does not necessarily mean retaliating in a tit-for-tat manner; responding to economic coercion with economic coercion. For example, Japan changed its export control regime in 2019 by removing South Korea from its whitelist for the licensing of sensitive items and moving three items, including hydrogen fluoride, from a comprehensive licensing system to an individual licensing system. The Japanese government maintains that this change in export controls was taken due to South Korea's own inadequate export controls and is not economic coercion. South Korea countered by suspending the renewal of the General Security of Military Information Agreement (GSOMIA), a bilateral military information sharing agreement.[29] Without norms in place to determine whether such retaliatory measures are economic measures or not, attempting to ensure economic security among nations through deterrence by punishment entails a great deal of risk.

It is also possible that a collective message of retaliation jointly made by multiple states, as in the case of collective self-defense, rather than a unilateral response by a single state, would enhance the effectiveness of deterrence by punishment. However, as already mentioned, only the establishment of a "Coordination Platform" has materialized thus far. A collective response, however, entails various problems. First, if a country's allies or partners are subjected to economic coercion, the victims of such coercion are likely to be competitors of its own companies. Even if it were possible to support allies and partners in some way, it is difficult to recognize the rationale for joint retaliation that would affect one's own businesses. Second, deterrence by punishment requires targeting the choke point of the other party, but this requires joint analysis of the other party's supply chain, which entails such issues as how to acquire information on trade secrets.

However, as a collective economic coercive measure, there is a case in which both Japan and the Netherlands agreed to take measures to strengthen export controls on semiconductor manufacturing equipment to China in response to the tightening of U.S. semiconductor export controls to China. This case suggests that collective action may be possible in some cases.[30]

Conclusion

The concept of "derisking" has been embedded in the concept of economic security in Japan. In order to promote "derisking," the country must not only strengthen its strategic autonomy, but also develop a deterrence strategy and prevent economic coercion from being triggered. However, there are various limitations to deterrence in the field of economic security, and it is difficult to realize such a strategy as a real policy. Furthermore, taking collective action, such as invoking the right of collective self-defense against economic coercion, will face a lot of difficulties, particularly when balancing the interests of individual countries.

Currently, the United States is considering international collective deterrence measures, modeled on the cooperation of Japan and the Netherlands in regulating semiconductor exports to China.[31] However, from a theoretical standpoint, this is not necessarily likely to succeed. As economic security becomes more important in the future, some countermeasures will be required, but simple deterrence strategies alone will not be sufficient. New types of deterrence strategies must be considered.

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Is Economic Security National Security? Defining South Korea's Economic Security for Future Industries

By June Park

Introduction:

Defining "Economic Security": The South Korean Response to U.S. Industrial Policy

Is economic security national security? What are the impediments to making economic security an independent pillar of national security in the post-pandemic era? Within the scope of international relations, the concept of economic security has traditionally been broadly defined as a subset of national security. During the pandemic and into the endemic, the first term of the Biden administration has seen a further surge in policy interest and several policy initiatives to integrate supply chain issues into the national security narrative.[1]

Faced with global supply chain shortages during the pandemic, the United States went from releasing the "100-Day Review" report, which identified four critical elements of future industries–semiconductors, batteries, pharmaceuticals and critical minerals – to mobilizing efforts to revitalize the U.S. economy geared towards future industries via the Inflation Reduction Act (IRA) and the Chips & Science Act.[2] The IRA increases public investment in green energy and inclusivity, and the second aims to bring back chip manufacturing to the United States to complete the semiconductor production ecosystem – of which the United States lacks sufficient foundries – to prevent supply chain issues in the future. Through such legislation, the Biden administration has changed U.S. industrial policy in the aftermath of the pandemic and amidst the geopolitical turmoil from the ongoing war in the Ukraine.

Industrial policy has become a buzzword and a campaign slogan for domestic politics in the run-up to the 2024 U.S. presidential election. Moreover, several industrialized economies are introducing subsidy-based policies to launch chip production facilities within their own jurisdictions to ensure chip supply.[3] In addition to the CHIPS and Science Act, the United States implemented a series of export

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controls on semiconductors through the Bureau of Industry and Security (BIS) for national security reasons. The uncertainty surrounding these export controls and their implications for semiconductor production in China compelled countries with extensive foundry capacity – notably Taiwan and South Korea – to build foundries within the United States, while uncertainty remained about the level of subsidies they would receive from the United States government.

From the U.S. perspective, it appears as though allied and partner countries' economic losses borne from participating in the U.S. industrial policy drive under national security concerns should be considered as defense burden sharing.[4] But the U.S. industrial policy drive was not without criticism, both domestically and internationally.[5] In Washington, there is a lack of attention and effort to the understanding of policy responses from countries on the receiving end of U.S. industrial policy. Given the United States is entering the presidential election cycle, it is likely the industrial policy drive will be hotly debated within the context of the U.S.-China relations, focusing on technology and AI, and lead to further policy gaps with U.S. allies and partners.

This paper attempts to fill a gap in the policy discourse with a detailed account of how U.S. industrial policy is perceived in South Korea, one of the countries that has been asked to participate in the broader scope of that policy, with particular emphasis on export controls and semiconductors. It examines South Korea's approach to economic security by unraveling how its political leadership and public and private sectors have responded to the Biden administration's industrial policy drive, which entails political and economic commitments by South Korea.

The paper examines South Korea's launch of its own industrial policy through the Advanced Industries Act and the K-Chips Act. The paper argues that, although internally divided, South Korea's policy response prioritizes protection of the industrial capacity of its future industries. Despite organizational conflict within the bureaucracy resulting from the country's fiscal challenges, South Korea's policy mindset on economic security is not necessarily defined as national security. Rather, it is designed to protect and nurture its talent and future economic prosperity by retaining its advantages in cutting-edge technology.

South Korea's Approach to Economic Security: Leadership, Public, and Private Sectors

As a global technology player and a major export economy, South Korea became acutely aware of the reshuffling of supply chains during the COVID-19 pandemic. The U.S.-ROK bilateral summit between Presidents Moon Jae In

and Joe Biden in May 2021[6] occurred at a time when South Korea did not have indigenous COVID-19 vaccine development or production capacity (of mRNA vaccines), and the Moon administration was under heavy pressure as it was late in the game for bilateral contracts with global pharmaceuticals.[7] Some reports have speculated that the U.S. leveraged vaccines to solicit the construction of Taiwanese and South Korean foundries in the U.S. to ease the global chip shortage, which impacted auto manufacturers in the U.S. and around the world.[8] Taiwan's TSMC became the main negotiator to gain access to COVID-19 vaccines from the U.S. and pledged a $40 billion foundry in Phoenix, Arizona.[9] South Korea's Samsung pledged to build a $17 billion foundry in Taylor, Texas, adjacent to the Samsung Austin Semiconductor which had been in operation since 1996.[10]

The change in political leadership from Moon Jae-in to Yoon Suk Yeol[11] was accompanied by drastic changes in foreign affairs, especially regarding U.S.-Japan-South Korea trilateral cooperation, primarily to address North Korea's increasing missile threats.[12] Amid the intensifying U.S.-China tech war, there has been considerable apprehension in South Korea on China's view of trilateral cooperation, given South Korea's economic reliance on the Chinese market. Once the political leadership changed from Moon to Yoon in March 2022, the bureaucracy followed suit, as the South Korean policymaking structure evolves around the presidency. At the outset of the Yoon administration, the term "technological alliance" was used frequently but over time faded, upon the stark realization that the Biden administration's "friend-shoring" policies are for "Made in America," and that such an alliance does not exist.[13] Several U.S. policies to deter China's technological advancement in semiconductors via BIS may impact South Korean firms, and the passage of IRA would exclude South Korean EV producers from U.S. subsidies, creating concerns for South Korean industries, though these concerns were addressed to a degree through the rule making process for commercial vehicles under the IRA. Using the term technological alliance, however, would be inappropriate when it is uncertain how South Korean industries would benefit from U.S. policy moves.

The South Korean bureaucracy – primarily the Ministry of Foreign Affairs – has been at the forefront of reestablishing ties with Japan, while being fixated on fortifying relations with the United States for national security reasons. There was considerable U.S. pressure on South Korea to normalize relations with Japan following the rift resulting from the 2018 South Korean Supreme Court decision surrounding Japanese forced labor practices during wartime and the Japanese export controls on three major semiconductor production materials

(hydrogen fluoride, photoresist, polyimides) in July 2019.[14] The U.S. push for trilateral cooperation led to the South Korean president's visit to Japan in March 2023 and the U.S.-ROK-Japan Camp David Summit in August 2023.[15] Although the Camp David Summit joint statement mentions cooperation on technology, including semiconductors and battery supply chains, the summit focused primarily on security cooperation and the reality of intense industrial competition in cutting-edge technologies was conveniently brushed aside. As we will see in the third section regarding the K-Chips Act, the Ministry of Economy and Finance (MOEF), the Ministry of Trade, Industry and Economy (MOTIE) and the Ministry of Science and Technology (MOST) have been grappling with the task of designing policy solutions for economic security. They have focused on the preservation and rearing of talent for future industries – in particular the buildup of an ecosystem and cluster system semiconductors – amid organizational conflicts on the fiscal cost.

Public and private sector interactions became very salient in building the policy response to U.S. industrial policy and designing the blueprint for South Korea's own economic security. At the public sector level, with Deputy Prime Minister for Economy Chu Kyung-ho at the helm, the heads of MOTIE, the Ministry of Land, Infrastructure and Transport (MOLIT), the Ministry of SMEs and Startups, the Ministry of Science and ICT (MSIT), the Ministry of Education (MOE), the Ministry of Agriculture, Food and Rural Affairs (MAFRA), the Ministry of Environment (MOE), the Financial Services Commission (FSC) and the Ministry of the Office for Government Policy Coordination are all involved in planning an industrial policy for future industries. Amongst the South Korean bureaucracy, MOTIE has been the agency most in touch with the industry. MOTIE official have shuttled back and forth between Washington and Seoul to prevent South Korean industries from receiving adverse treatment from BIS export controls on semiconductors, IRA provisions on EVs, and the guardrails for the Chips and Science Act subsidies.[16] MSIT has been instrumental in setting a strategic technology roadmap for future industries.[17] For the private sector, the concerns regarding the uncertainties of U.S. subsidies provided by under the Chips and Science Act and the IRA were shared by Taiwan and France.[18] Severe competition in the global market is the harsh reality for South Korean companies – the big four conglomerates are striving to maintain their standing and to hold onto South Korean talent.[19] In writing and passing the Act On Special Measures For Strengthening The Competitiveness Of, And Protecting National High-tech Strategic Industries (Advanced Industries Act in short), a public-private committee was established to discuss priorities.[20]

Public opinion remains divided on security and economic matters. The critical role China plays in global supply chains continue to put South Korean companies at risk. South Korea experienced Chinese economic coercion upon the deployment of the Terminal High Altitude Aerial Defense missile defense battery (THAAD). This experience created muscle memory for defensive measures or diversification of sources, as did Japan's export curbs of semiconductor fabrication materials against South Korea in 2019. An example of such defensive measures was the activation of an early warning system under the Moon administration in November 2021, after facing a urea shortage from China, upon which South Korea relies for diesel trucks.[21] The same problem resurfaced in December 2023, signaling to continuing challenges of supply chain disruption in the country's trade with China.[22] Furthermore, at the Asia-Pacific Economic Cooperation (APEC) Forum in November 2023, the Yoon administration sought to upgrade such early warning system to incorporate high-tech supply chain issues for easing vulnerability.[23]

While there is apprehension over alarming North Korean missile tests and China's technological catch-up, China remains a viable and indispensable market and site for production, making an immediate exit impossible. Nonetheless, South Korea needs to diversify away from China.[24] South Korean industries are eyeing India as a production site for sale to the Middle East and Europe. Meanwhile, while trilateral cooperation is touted by the United States, the South Korean public is uneasy about Japan as a reliable partner, given the previous export curbs that prompted the South Korean chip industry to diversify their sources.[25] On semiconductors, there is clear intent by the Japanese Ministry of Economy, Trade and Industry (METI) to gear up on semiconductor business via Rapidus in Hokkaido, backed by Tokyo Electron and IBM (patents), but the funding scheme or the technological catchup does not seem viable at the moment for Japan.[26]

Economic Security in Legislation on Future Industries: South Korean Industrial Policy on Semiconductors, EVs, and EV Batteries

In understanding how South Korea is formulating its roadmap for economic security, one must refrain from focusing on the optics of the country's diplomatic and foreign relations, and rather look toward its response to specific U.S. legislation and U.S. executive branch measures as well as its own domestic legislation on future industries. Before turning in greater detail to South Korea's economic security strategy on semiconductors, it is important to review how it navigated challenges surrounding EVs and EV batteries.

By the time IRA was passed in August 2022, South Korea's LG Energy Solution and SK On had just resolved a patent dispute on EV battery technology at the USITC.[27] After the issue had been resolved, South Korean EV producers such as Hyundai Motor Company and Kia Motors Corporation were steadily increasing their presence in the U.S. EV market but were dumbfounded by the IRA's clause requiring final assembly in North America to be eligible for IRA subsidies. Both companies EVs were assembled in South Korea and would not qualify for the EV consumer tax credit (up to $7,500) under the IRA. They would lose first mover advantage in the U.S. market by being discriminated against. The IRA's passage was received as a betrayal by South Korean EV players, as it came after Hyundai's commitment to build an additional $5.5 billion EV plant in Georgia by 2025. The announcement by Hyundai Motors Executive Chair Chung Eui-sun during Biden's visit to Korea in May 2022 was followed by Biden's statement that the new factory near Savannah, Georgia – a key swing state in U.S. electoral politics – would create more than 8,000 new American jobs, at a point when the U.S. was headed towards the mid-term elections in November 2022.[28]

South Korean Trade Minister Ahn Duk-geun immediately engaged in negotiations with United States Trade Representative (USTR) Katherine Tai, and there were two tweaks in the IRA. On December 29, 2022, the Internal Revenue Service stated leased vehicles would also be eligible for tax credits under the IRA. Then, on March 31, 2023, the U.S. Treasury Department announced a rule for the IRA's content requirements that includes general criteria for U.S. FTA partners, which would include Korea under the KORUS FTA.[29] However, the U.S. Treasury's recent announcement on "a Foreign Economy of Concern" (FEOC) that would require less than 25% of shares in a joint venture with a Chinese firm for IRA subsidy eligibility would compel South Korea's joint ventures on EV batteries with Chinese companies to readjust the proportion of shares through negotiation.[30] Given China's upper hand in critical mineral sources for batteries, South Korean players face an uphill battle to comply with U.S. regulations.

The enactment of the IRA and these developments between the United States and Korea were covered in full detail by the South Korean media and led to considerable political pressures on the Yoon administration. Public opinion reflected discontent about the government's lack of business intelligence toward the passing of the IRA and not being observant enough towards the legislation. The South Korean public questioned the United States' end goal in "friendshoring" and the validity of cooperation with the United States on future

technologies. It also led the South Korean government to proceed with joint investment with battery companies to develop advanced technologies, announce investment tax credits for its own EV plants within South Korea, and push through with legislations to protect South Korean battery technologies, alongside semiconductors, displays, and biopharmaceuticals.

Turning specifically to semiconductors, South Korea passed three laws central to its economic security strategy in response to U.S. export controls and the Chips and Science Act. These laws demonstrate South Korea's policy response to U.S. industrial policy is focused on fortifying its innate capacity and protecting technology and talent for the potential growth of future industries, in which South Korea is strong. The government is focused on: 1) giving tax breaks to encourage further investment; 2) preventing tech leaks and talent loss; and 3) securing the chip supply chain.

The 'K-Chips Act' (K 칩스법) or the Act on Restriction on Special Cases Concerning Taxation (조세특례제한법)

The K-Chips Act was proposed by National Assemblywoman Yang Hyang-ja, an independent lawmaker and former chip engineer and executive of Samsung.[31] It was an amendment to the Act on Restriction on Special Cases Concerning Taxation to give partial tax breaks to companies ranging from conglomerates and middle-standing to SMEs engaged in the semiconductor industry. The amended Act took effect in April 2023. During the drafting of the amendments, partisan discord on the tax deduction rate and conflicts between MOTIE and MOEF arose. MOTIE was primarily concerned about South Korean industrial competitiveness as the U.S.-China tech conflict on chips became heated, and MOEF worried about reduced tax revenue due to the proposed tax deductions given to semiconductor firms. The presidency had to step in to set the originally proposed rates at a higher rate and to give impetus for the bill to be passed.[32] Both domestic and foreign companies investing in the 2023 fiscal year are eligible for the tax breaks in the amended act. According to the Korea Economic Research Institute, raising the tax deduction rate from 8% to 15% would save KRW 2.5 trillion for the local chip industry.

Table 1. Tax Deduction Rate from the K-Chips Act

Catagory	Tax Deduction Rate for Current Investment			Deduction Rate for Increased Investment
	Large Companies	Middle-Standing Companies	SMEs	
General Technologies	1 → 3	5 → 7	10 → 12	3 → 10
Newly Emerging Growth and Original Technologies	3 → 6	6 → 10	12 → 18	
National Strategic Technologies	8 → 15	8 → 15	16 → 25	4 → 10

Note: Total tax deduction amount for investments for companies = (investment amount * tax deduction rate for the current investment) + (increased investment compared to the preceding three-year average * tax deduction rate for the increased investment)

Source: 조세특례제한법 일부개정법률안 입법예고, Ministry of Trade, Industry and Energy (MOTIE)
https://www.moleg.go.kr/lawinfo/makingInfo.mo?lawSeq=71634&lawCd=0&&lawType=TYPE5&mid=a10104010000

As indicated in Table 1, for instance, a large company which annually invests 100 billion KRW focusing on newly emerging growth and original technologies can receive a total tax cut of 17 billion KRW from the temporary tax deduction for increased investment (6 billion KRW each for 2023 and 2024) and an additional 5 billion KRW for the increased amount.

The concerns expressed by MOEF are indeed valid, as the South Korean government faces fiscal challenges.[33] The government experienced a deficit of 2.7% of GDP in 2020 (on a general government basis), as spending soared to offset the impact of the pandemic, but the deficit declined to -0.6% of GDP in 2022. However, with the most rapid population aging in the world, government spending is certain to soar in the years ahead, making it important to maintain

a sound fiscal position. Nonetheless, the overall loss from losing a competitive edge in semiconductors would be insurmountable for the South Korean economy, as witnessed in the earning shocks in the previous quarters in 2022 and 2023. For recovery, any form of government support for the industry is highly desirable as the competition gets fiercer.

While the K-Chips Act falls short in amount to support South Korea's expansion of chip production capacity and upgrading of the industry, it is seen as an attempt to bolster the semiconductor ecosystem in South Korea. Samsung Electronics intends to spend $230.4 billion to build a semiconductor ecosystem cluster in the city of Yong-in in Kyeonggi province outside of Seoul, for operation by end of 2030. The cluster will focus on system semiconductor development and fabrication. Given the amount of electricity (up to 10GW and above by 2042) and water and land (4,150,000 square meters) that will be required to construct the cluster, a public-private partnership between local governments and industry was required. SK Hynix will also construct a chip-cluster in Yong-in by investing $88 billion and needed a breakthrough to overcome the water provision issue to construct the cluster.[34] Because the two clusters will require more than 10GW of electricity by 2050, nuclear power plant-based power generation (in addition to renewables for additional energy sources) would be indispensable for the plan to be executed thoroughly.

Enforcement Decree of the Act on Prevention of Divulgence and Protection of Industrial Technology (산업기술의 유출방지 및 보호에 관한 법률 "산업기술보호법" 시행령)

The Act on Prevention of Divulgence and Protection of Industrial Technology (ITA), implemented in February 2020, is intended to protect the future industries from technological spills, unintended tech transfers and the loss of tech talent.[35] South Korean companies struggle to find foreign tech talent.[36] Currently, there are nine different proposals for amending the law that are being circulated in the National Assembly by the ruling party, or in bi- or multi-partisan form, to meet the challenges of the heightened global tensions on technology, particularly on semiconductors, large capacity batteries, and displays – as will be explained in the following legislation on advanced industries.[37] The proposed amendments to the law entail protection of technology from spillover to overseas companies, trade secret theft, and theft of technologies developed by start-ups and SMEs. The list of technologies to be applied to the law can be updated or are subject to change.

Act on Special Measures for Strengthening the Competitiveness of, and Protecting National High-tech Strategic Industries or Advanced Industries Act (첨단기술전략산업법)

Under the Advanced Industries Act, enacted on July 10, 2023, the government designated 17 different technologies in the areas of semiconductors, displays, batteries, and biopharmaceuticals as future industries the country will strive to nurture and foster strategically.[38] The act diverges from the ITA in that the scope of the applicability of the law and designation of specific technologies differ. Under ITA, a broader spectrum of 75 technologies across future industries – automobiles, railroads, steel, shipbuilding, nuclear power, telecommunications, space, machinery, robotics, and hydrogen – are designated as core technologies into the national strategy. The Advanced Industries Act places emphasis on a more narrowly defined cluster of technologies related to the stability of supply chains and national and economic security, whereas ITA overseas the breadth of technologies that may impact the national security or economic well-being of the South Korean citizens. The Advanced Industries Act currently specifies at present eight specific technologies concerning semiconductors, as well as four technologies on displays, three technologies on batteries and two technologies on biopharmaceuticals (Table 2).

Table 2. Specific Technologies Governed under the Advanced Industries Act in Semiconductors, Displays, Batteries and Biopharmaceuticals

Industry	Technology
Semiconductors (8 technologies)	DRAM design, fabrication, device processing and 3-dimensional stacking, 16 nanometer (nm) or below
	DRAM stacking assembly and testing, 16 nm or below
	Stacked 3D NAND Flash design, fabrication, and device processing, 128 layers and above
	3D NAND Flash stacking assembly and testing, 128 layers and above
	Image sensor design, fabrication, device processing, 0.8-micrometer (μm) pixels and below
	DDI (Display Driver IC) design for OLED for display panel powering
	Fabrication and device processing and 3-dimensional stacking for foundries, 14 nm and below
	FO-WLP, FO-PLP, FO-PoP, SiP fabrication, assembly, and testing for System-on-Chip (SoCs) advanced packaging

Displays (4 technologies)	AMOLED Panel design, fabrication, processing, and powering (for displays of micro-types 3,000 ppi and above, medium types 500ppi and above, medium large types FHD and above, and large types 4K and above) (excludes module fabrication technology)
	Design, fabrication, processing, and powering of environment-friendly display panels of QD materials, full width at half maximum (FWHM) 40nm and below (90% and above at color gamout REC2020 standard, excludes LCD and module fabrication technology)
	Design, fabrication, processing, and powering of micro-LED applied display panels, 30 μm and below, mobile chip size 20 μm and below, microchip size 5 μm and below
	Design, fabrication, processing and powering of nano LED-applied display panels, size 1 μm and below (excludes module technology)
Batteries (3 technologies)	Design, fabrication, processing, and assessment of high-energy density lithium batteries (pouch type batteries of 280 Wh/kg and above, angular batteries 252 Wh/kg and above, cylinder type batteries 280 WH/kg and above and radius of 21 mm and below, and cylinder type batteries 260 Wh/kg and above exceeding radius of 21 mm)
	Cathode materials-based design, fabrication, and processing of large capacity lithium batteries (nickel content exceeding 80%)
	Design, processing, fabrication, and testing of ultra-high-performance electrode 600mAh/g and above (silicongraphite compound cathode, sulfer anode, lithium metal cathode) or next-generation lithium batteries (all-solid-state battery, lithium-sulfer batteries, lithium metal batteries)
Biopharmaceuticals (2 technologies)	Cultivation and refining of animal cells for developing and manufacturing of biomedical products (multiple-use bioreactor cell cultivation: 10,000 liters and above)
	Organoid cell culture and subculture for high-quality organoid reproduction cure development and fabrication (Autologous and allogeneic organoid reproduction cure culturation size: 100 dose/lot and above, organs-based organoid purpose cell construction: 80% and above, organs-based survival rate: 80% and above)

Source: The Law Times, June 9, 2023. https://www.lawtimes.co.kr/LawFirm-NewsLetter/188214

During the drafting of the Advanced Industries Act, a special public-private committee was established and industries that were originally not included lobbied hard, which led to the current list. Domestic companies in nine future industry categories filed requests to include 43 technologies under the Act, including: 18 technologies on semiconductors, five on batteries, four on autos, four on hydrogen, three on aerospace, two on food tech, one on textiles and one on solar panels, of which 17 were included on the list.[39] However, the law mandates the National Assembly to review the technologies governed by this law every three years, so the list may be changed or expanded in the future.

The national strategic industry roadmap that South Korea has outlined focuses on identifying core technologies that require tech sovereignty for industrial competition and survival.[40] The roadmap defines national strategic technologies as those that are strategically important from the perspective of the national economy, diplomacy and security, and creation of new industries, and span across twelve designated technologies: semiconductors and displays, batteries, cutting-edge mobility, next-generation nuclear power, high-tech bio, aerospace and aeronautics, cybersecurity, artificial intelligence, next-generation telecommunications, state-of-the-art robotics and fabrication, and quantum technology. Strong policy emphasis will continue to be placed on batteries and future mobility (i.e., self-driving vehicles, and K-UAM, or urban air mobility – flying taxis).

Conclusion

Given the recent rapprochement between the United States, South Korea, and Japan, one may conveniently assume that a U.S. military ally such as South Korea would fall in line with the U.S. push for cooperation even in the realms of critical technologies, as indicated in the joint statement at Camp David mentioning cooperation on supply chains, specifically on chips. Such diplomatic efforts relate directly to South Korea's national security concerns, particularly as North Korea has steadily increased the number and degree of missile tests.

However, while South Korea has adhered to BIS-led export controls on semiconductors, the chip industry is the backbone of its economy. As this paper shows, recent domestic legislation indicates South Korea is eager to construct its own version of industrial policy to nurture and protect technologies for future industries. The three laws examined above, the committees established based

on mobilizing public-private partnerships, and detailed funding plans using government and private sector capabilities across the semiconductor, display, battery, and biotech sectors reveal this policy drive at work.

South Korea's economic security prioritizes retaining and fortifying industrial capacity, in its policy response to the intensifying U.S.-China tech war and supply chain reshuffling. Going forward, U.S. and South Korean policymakers would also benefit from: 1) taking cautionary steps toward trilateral cooperation, given the public wariness on relations with Japan except for security cooperation concerning North Korea; and 2) taking into account the Korean public's strong sentiments in support of protecting future industries and perception of economic security concerns as directly related to their economic livelihood. Additionally, anxiety of tech transfer to China has always been existent in South Korea. Yet an equal level of anxiety regarding possible U.S. absorption of South Korean tech talent and industrial capacity has arisen amongst in recent years, as a result of the U.S. Chips and Science Act's subsidy guidelines and guardrails in tandem with BIS export control guidelines and IRA.

In sum, it would be an overestimation to expect that South Korea would adhere to a complete alignment with U.S. requests on cooperating on emerging technologies in the absence of its own industrial strategies for the future.

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China's Perspective on Economic Security

By Audrye Wong

Introduction

The U.S.-China trade war and the COVID-19 pandemic alongside growing concerns over maintaining access to critical technologies and supply chains has heightened global attention to economic security issues in recent years. For the United States and many European countries, China is seen as a major threat to economic security, and a major driver of current discussions and policies. In turn, how does Beijing view economic security as well as other countries' actions in this realm?

When Chinese president Xi Jinping introduced the Comprehensive National Security Concept in April 2014, he declared that it would take "security as the purpose, political security as the basis [根本 *genben*], and economic security as the foundation [基础 *jichu*]."[1] Economic security is not a new or foreign concept to Chinese thinkers and policymakers, but the emphases, concerns, and priorities have evolved over time, due in part to changes in the international environment as well as in China's own economic and geopolitical situation. This article examines how Chinese leaders and scholars have approached the definition and scope of economic security, as well as recent and proposed policy responses. It draws on a range of Chinese-language official documents and scholarly writings as well as broader secondary source analyses.

A 1999 article by a reputable Chinese scholar, Zha Daojiong, defines economic security as "the role external economic interactions can play to either enhance or weaken a country's sense of security in the global nation-state system that is often preoccupied with territorial integrity, defense and deterrence."[2] His reading of Chinese scholarly literature at the time finds that there is a general definitional consensus as "a situation where a sovereign nation's economic development and economic interests are free from interruptions or threats posed by internal or external elements;" and that most analysis has focused on the external dimension of China's economic security as well as the impact on the country's overall situation, with "national economic security" (*guojia jingji anquan*) being a standard and commonly used term.

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Certainly, there has been variation in Chinese writings on their treatment of economic security. Some scholars, particularly in the earlier days, focus on ensuring economic development and sustainability, as well as the role of internal factors such as inequality and unemployment, while others highlight more traditional national security implications, such as access to resources and ensuring a firm industrial base for military capabilities. Still others emphasize that economic security can vary by individual countries and across time and entails a continual process of policy responses.[3]

In general, China's notion of economic security has shifted from mainly responding to the economic vulnerabilities arising from globalization to an expanded array of concerns driven by political factors such as perceived U.S. containment and U.S.-China rivalry. While Beijing's rhetoric of self-sufficiency and state-led industrial policies often grab headlines, China is also thinking about economic security in more nuanced ways. Economic security is seen as a natural consequence of economic growth and openness, and the focus is on managing those added risks. There is a clear recognition of continuing the benefits of economic integration alongside domestic strengthening. This also involves a strategic interpretation of ensuring that China capitalizes on its position in the global economy to gain maximal leverage for safeguarding its own economic security, including supply chain resilience as well as domestic industrial upgrading.

While Chinese discussions of economic security tend to be framed as ensuring economic development and stability, development is implicitly and explicitly linked to national security. Many writings emphasize that economics is the foundation for national strength (including military capabilities). As such, it is more than just economic survival and growth for the economy's sake, but also as having implications for China's geopolitical position in the international order. In that respect, economic stability and national security may be hard to separate. Indeed, we see a resurgence in today's rhetoric about the notions of development and security as inextricably linked, along with the need to coordinate the two — and in service of maintaining CCP rule and regime stability. Some have argued that economic security is a necessary condition for development, but that it is also more than that – the scope of economic security includes using economic tools to substitute, complement, or strengthen military tools, in pursuit of national security goals.[4]

Finally, we see Beijing taking concrete steps toward increased legalization and institutionalization of economic security measures. This represents a shift, at least in the domain of retaliatory countermeasures, from its usually more

"informal" approach to economic coercion, which has afforded more flexibility and minimized political costs for the regime. At the same time, actual implementation has been relatively limited thus far.

Evolution in Thinking about Economic Security

Xi's emphasis on economic security has a strong legacy in Chinese and CCP history. During the Mao era, China's priorities were to ensure food security and jumpstart economic development. Modeling policies after the Soviet Union's own industrial development push, Mao Zedong emphasized the need for China to develop economically and scientifically, including the Great Leap Forward and the "Two Bombs, One Satellite" campaign.[5] In drawing lessons from this period, Wu and Zhou highlight the important role of developing heavy industry and the defense industry in achieving strategic goals of national security and laying the foundation for a more self-sufficient industrial system, despite a few problems at the "micro level" (the disastrous humanitarian consequences from the Great Leap Forward are not mentioned).[6]

For quite some time after China's post-1978 reform and opening up, economic growth (including foreign economic relations, i.e., trade and investment) and national security (involving state sovereignty and territorial integrity) were treated as separate conceptual issues. In the 1990s, more discussions of economic security started to emerge, particularly against the backdrop of the 1997 Asian Financial Crisis as well as China's entry to the WTO.[7]

By extension, Beijing's conceptualization of economic security was very much about weathering the risks stemming from globalization and economic integration — in other words, how to respond to more classic problems such as vulnerabilities to market demand, energy shocks, or financial contagion. A 2014 article, originally published in *Legal Daily* and reproduced in the *People's Daily*, presented economic security as about a country's overall economic competitiveness and the economy's ability to withstand external "attacks, disturbances, and crises" while ensuring growth and stability.[8] China's economic openness (*duiwai kaifang*) had brought opportunities along with challenges, including a growing need for natural resources, energy sources, and markets. Economic security needed to emphasize competitiveness and proactiveness in improving the conditions faced by China.[9]

Concerns over energy security – ensuring access to natural resources from abroad –became more prominent, particularly a reliance on oil imports and on maritime transport routes more broadly. Chinese scholars expressed concern over potential vulnerabilities to naval blockades as well as national and

corporate monopolies over important inputs such as iron ore. Australia's dominance as an iron ore producer and exporter was flagged given Canberra's membership in the Five Eyes Alliance, which was seen as facilitating the manipulation by "hegemons."[10]

Of course, geopolitics was never far from the mind. The end of the Cold War signaled to Beijing that the economy would be important in determining national strength. That is, economic development would be crucial for China's "campaign for national greatness" and ensuring China's security in the post-Cold War era (military conflict, on the other hand, is seen as detrimental to such goals). U.S. hegemonic expansion and accompanying rhetoric of a 'China threat' is seen as part of an attempt to limit China's economic growth and its policies of cultivating "friendly neighbors" (*mulin zhengce*). By extension, China must then safeguard its own economic strength in order to counter U.S. efforts.[11]

In Zha's analysis at the turn of the century, Chinese scholars actually come across as more concerned about economic security than official government policy during that time. While Beijing was still actively promoting increased foreign direct investment into China, analysts argued for a balance between such foreign economic involvement in the Chinese economy and the need to protect the indigenous economy (*minzu jingji*) and indigenous industries (*minzu gongye*) so as to ensure "economic sovereignty" and prevent exploitation by foreign capital.[12]

Economic Security in the Current Era

In the 1990s and even into the early 2010s, there remained considerable optimism about favorable conditions for China's economic security and economic development.[13] Post-2012, Beijing is portrayed as facing an increasingly complex array of threats to economic security. By some accounts, China is now in a "critical phase" [关键阶段 *guanjian jieduan*] since the "watershed" year of 2017 when its economy exceeded 60% of the U.S. economy, seen as crossing the "red line" for U.S. perceptions of China as a great power competitor.[14] A 2021 article in the *People's Daily,* titled "Integrated planning [统筹 *tongchou*] of development with economic security," points to an expanded range of concerns.[15] Contrasting with previous writings that describe a largely favorable situation for China, this article emphasizes a far more tumultuous external environment. In addition to the usual vulnerabilities from exposure to foreign markets, it highlights how global industrial and supply chains are facing challenges due to "non-economic factors" — read, the U.S. trade war and geopolitically-driven economic pressures such as export controls and investment restrictions.

The approach of integrating development and security was first introduced by President Xi in a series of speeches in 2014, including important meetings of the Central National Security Commission and the Central Conference on Work Relating to Foreign Affairs as well as at an international conference on Asian security.[16] Equating development and security represented a significant shift away from the 'development-first' approach, which then-CCP General Secretary Jiang Zemin declared in 2002 to be the Party's top priority. Even Xi required some time to overcome institutional resistance and build consensus around his new formulation, eventually facilitated by external security pressures including the U.S.-China trade war from 2017.[17] The integrated development-security approach was officially adopted during the Fifth Plenum of the 19th Central Committee in October 2020, and is viewed as parallel to integrating "the strategic rejuvenation of the Chinese people with changes unseen in a century" (the latter a commonly used CCP phrase in recent years).[18]

Xi's new approach could be interpreted as elevating economic security to "unprecedented heights."[19] Implicit in this phrase is perhaps that there may be tradeoffs between development and security, but that safeguarding security will take priority, and that economic development should serve to enhance China's national security. Some scholars further adopt a zero-sum understanding of economic security, saying that China should take a relative gains rather than an absolute gains approach – in other words, if the other party benefits more, that is considered negative for national economic security. Moreover, the existential nature of these threats justifies broader securitization of the economy and the breaking of institutionalized rules.[20]

In an official interpretation of the 14th Five Year Plan (2021-2025), the National Development and Reform Commission (NDRC) identified four categories of economic security: industrial supply chains, food and agriculture, energy and resources, and the financial system. It noted that (i) China is still very reliant on foreign countries for core industrial components and technologies, leading to shortages and supply chain disruptions; and that China is facing pressure on both sides from reindustrialization in developed economies and from developing economies moving up the value chain. (ii) China should not relax its grip on food security, given its reliance on imports and challenges of domestic agricultural productivity. (iii) China's resource demand will continue to increase, including minerals and rare earths for strategic emerging industries. Mineral import sources are highly concentrated, while mineral resource development faces challenges of lagging technology, overexploitation, and waste. (iv) The financial system still faces many risks from foreign monetary policies, illegal

activities, struggling assets and capital shortages; additionally, platform business (e.g., tech and digital commerce) monopolies and the "disorderly expansion" of capital pose threats to the socialist market economy.[21]

Some Chinese scholars are more explicit in their discussion of threats, referring to the United States and the West's ability to cut off access to SWIFT as a "financial nuclear bomb."[22] These fears remain salient in Chinese thinking even though existing Western measures against Russia have not been as sweeping or strict in their scope as they could be. The same authors highlight the United States as a major threat to China's economic security (Washington is also blamed for what the authors characterize, perhaps exaggeratedly, as Japan's "lost three decades").[23] The United States is seen as using illegal and "bullying tactics" to suppress China's technological progress and economic development through "technological decoupling." In particular, Washington is accused of targeting leading Chinese firms such as Huawei, "weak links" such as 5G and high-end semiconductors, disrupting supply chains and restricting market access to stifle the commercialization and adoption of Chinese technologies, in order to allow the United States to catch up and preserve its market space as well as its hegemonic position. In terms of financial threats, a PBOC-affiliated researcher highlights three major potential risks: freezing or confiscating U.S. dollar reserve assets; cutting Chinese actors off from US dollar payment and clearing channels, such as SWIFT and CHIPS; including Chinese high-tech companies in an "entity list" (a trade restriction list published by the U.S. Department of Commerce 's Bureau of Industry and Security (BIS)) as well as forced 'de-listing' of Chinese stocks; and obstructing RMB internationalization.[24]

There is active recognition that the increased concern about economic security is a logical result of China's openness; expanding issues of economic security is not an indication of a "weak" China but in fact a function of its strengthening economy.[25] President Xi himself has stated that greater openness means a greater need for security, and few on the Chinese side have suggested that closing off its economy to the outside world is the primary solution. In fact, some scholars have written that the latter approach may prevent external threats but would also increase "internal threats" and ultimately harm national economic security. In this reading, external factors pose threats because of inadequacies in internal systems to manage and respond to such challenges.[26]

As such, economic interdependence is portrayed as a "double-edged sword" in two ways. Certainly, China has experienced rapid growth and become more prosperous, but there is also greater exposure to external situations and

threats.[27] Second, China may face more sources of threats to its economic security but it can also leverage its position and draw on more tools to consolidate its security.[28] Another article mentions capitalizing on "global markets and resources" to strengthen China's system [*tixi*] of national economic security.[29]

Policy Responses

What exactly does integrating/coordinating development and security entail? President Xi has referred to the need to enhance self-competitiveness, regulatory oversight, and risk control.[30] Authoritative sources also emphasize the importance of keeping China as a key player in the international economic system, including for deterrence purposes. Certainly, the Party holds the "leading position" overseeing all work related to economic security. The Chinese people are described at being at the "center" of economic security, both because government policies are designed to promote development and well-being, and because the people are exhorted to be supporters of the Party's goals, including sometimes reconciling individual interests and national security.[31] The latter might be seen as a hint that the pursuit of economic security as defined by the CCP may involve some costs.

Chinese analysts interpret – and perhaps grudgingly admire – the United States as protecting its own economic security through a number of ways: pushing diplomacy and democratic values to align other countries politically, using its military power to exert desired influence, leveraging its technological dominance to control access to advanced technology, using regional and international organizations to 'Americanize' the rules of the game and shape structural conditions, and using U.S. multinationals to implement government policies and ideas.[32] While Beijing's ability to use similar methods is still more circumscribed, it is certainly looking to strengthen its technological capacities and create more favorable structural and institutional conditions.

Leveraging the Global Economy to Enhance China's Economic Security

Official and unofficial writings have simultaneously advocated for continued economic integration and international cooperation alongside strengthening China's own industrial and technological capabilities. For example, the 2021 *People's Daily* article discusses liberalizing trade and investment and promoting regional integration, as well as adopting enhanced regulatory measures to manage risks such as an early warning mechanism for industry vulnerabilities, policy tools to address the costs of trade frictions, promoting self-reliance in advanced S&T, and accelerating critical and core technological breakthroughs.[33]

In line with the above-stated framework of leveraging the global economy to enhance China's own security, promoting economic integration entails "deep coupling," or building more resilient global supply chains.[34] The focus is thus on ensuring that China maintains access to needed resources, inputs, and technologies, and also presumably to position China as a crucial node in trading and investment networks, making it harder for other countries to cut China out of critical supply chains. This can in turn facilitate the second prong of rapid industrial upgrading and becoming stronger and more self-sufficient in critical and core technologies.[35] Promoting deeper integration can also be seen as a way to divide and conquer. Even while noting a shift in U.S. and European approaches to economic security from defensive to aggressive, one article calls for continued communication and cooperation with Europe and improving China's domestic business environment to attract European firms. The author explicitly describes this strategy as a way to divide EU member countries and reduce economic security coordination between Washington and Brussels.[36] While transatlantic cooperation has only strengthened over Ukraine, European nations such as Germany still remain eager for access to the Chinese market.

This ties in closely with Beijing's policies on the "new development pattern" [新发展格局 *xin fazhan geju*] and the concept of "dual circulation" [双循环 *shuang xunhuan*], in which "the internal market is the main part, while internal and international dual circulations mutually promote one another [以国内大循环为主体、国内国际双循环相互促进的新发展格局 *yi guonei da xunhuan wei zhuti, guonei guoji shuang xunhuan xianghu cujin de xin fazhan geju*]."[37] That is, expanding China's domestic demand should now be regarded as the primary driver of growth, in contrast to the previous export-led growth model that depended on globalization, which in Beijing's eyes is encountering numerous "headwinds," from Covid to perceived protectionism.[38] In contrast to previous efforts at "rebalancing" the Chinese economy to reduce export dependence after the 2008-2009 global financial crisis, dual circulation emphasizes reducing dependence on imports and increasing self-sufficiency."[39]

On the other hand, the international component brings added coercive and deterrent power for China's economic security. As Xi wrote in 2020, "…we should strive to reshape new industrial chains and comprehensively increase technological innovation and import substitution…We must build on our advantages, solidify and increase the leading international positions of strong industries, and forge some "assassin's mace" [杀手锏 *shashou jian*] technologies (a wide array of technologies that might afford an inferior military an advantage in a conflict with a superior military power). We must sustain and enhance our

superiority across the entire production chain in sectors such as high-speed rail, electric power equipment, new energy, and communications equipment, and improve industrial quality; and we must tighten international production chains' dependence on China, forming powerful countermeasures and deterrents against those foreigners who would artificially cut off supply to China."[40] In this context, import substitution appears to refer to reducing dependence on other countries but without necessarily exiting global supply chains, in a way that leaves other countries still dependent on China as a critical node.

Technology and High-Tech Supply Chains

Certainly, technology is seen as a key domain for ensuring economic security: "economic competition is the foundation of national competition, and technological competition is the foundation of economic competition."[41] An oft-raised concern is so-called "stranglehold" [卡脖子 *ka bozi*] technologies for which China is heavily dependent upon other countries and seen to be "constraining China's industrial development."[42] A Ministry of Education article identifies 35 of these technologies, ranging from photolithography machines and chips to high-end steel materials to electronic components to industrial software. Xi has described S&T as "the primary productive and competitive forces" in "today's world," and called for China to become "a global leader in important scientific and technological fields and a pioneer in cutting-edge and interdisciplinary fields."[43] Promoting S&T advancements and attracting talent in these areas is seen as vital for achieving Beijing's national goals and generating new sources of economic growth.[44]

In line with Xi's emphasis on science and technology, the Innovation-Driven Development Strategy (IDDS), launched in 2016, represents China's "master plan" for industrial policy, encompassing but also going beyond the erstwhile-named Made in China (MIC) 2025 and seeking not just to catch up with other leading economies but also to take the lead in a range of critical emerging technologies.[45] It explicitly links S&T innovation with economic security and national survival: "The core support of national strength is technological innovation capability. National prosperity follows from strength in innovation, and national misfortune follows from weakness in innovation [创新强则国运昌，创新弱则国运殆 *chuangxin qiang ze guoyun chang, chuangxin ruo ze guoyun dai*]. A major cause of China's stagnation in the modern era was that it let previous technological revolutions pass it by, leading to technological and national weakness [科技弱、国力弱 *keji ruo, guoli ruo*]. To achieve the Chinese dream of the great rejuvenation of the Chinese nation, one must truly make good use of science and technology, which is a revolution in the highest sense and a powerful lever.[46]

Of course, the IIDS and MIC 2025 build on previous techno-industrial policy initiatives that sought to increase self-sufficiency and move up the value chain, even before economic security became a regular buzzword. This includes the 2010 Strategic Emerging Industries (SEI) [**战略性新兴产业** *zhanlvexing xinxing chanye*], which laid out seven critical areas for domestic innovation: energy conservation and environmental protection; next-generation information technology, biotechnology, precision and high-end machinery; new energy; new materials; and new energy vehicles.[47] As part of this industrial policy push, Beijing uses government guidance funds (GGF) [**政府引导基金** *zhengfu yindao jijin*] to invest in key areas, with the most famous and well-funded example being the National Integrated Circuit Fund, also known as "The Big Fund."[48] These funds operate similarly to venture capital or private equity funds, buying stakes in existing companies and shaping those companies' operations.

Other Domains of Economic Security: Financial and Energy Security

In terms of responding to U.S.-led financial sanctions, Chinese analysts have similarly touted a mix of defensive resilience measures alongside deterrence through deepening global integration. One PBOC-affiliated researcher discusses how to "uphold the two-way opening up strategy." They state: "We must tighten the supply chain and industry chain linkages between China and the United States and both sides should hold each other's assets on a symmetrical scale. The mutual penetration of the Chinese and American economies will inevitably weaken the willingness to impose financial sanctions, and there will be second thoughts about large-scale and extreme financial sanctions in particular."[49] The same author advocates for building stronger relations with the EU and other U.S. allies, including FTA and investment agreement negotiations, to avoid a united U.S.-led bloc; and pushing for reforms of the international monetary system such as IMF voting rights and SWIFT neutrality. Resilience measures include improving alternative payment and settlement systems and software, as well as early warning mechanisms to monitor cross-border capital flows. Chinese financial experts mention promoting RMB internationalization, although there is pragmatic recognition that this will be a slow and limited process,[50] in part given China's reluctance to take necessary steps such as relaxing its capital controls, allowing more convertibility of the RMB, and reforming its financial sector much more deeply in order to provide incentives for people outside China to use the RMB. Overall, Beijing seems relatively cognizant of the difficulties of matching U.S. financial firepower, and many of its proposed measures center on participating in global financial governance and ensuring broader trade and investment interconnectivity to increase the costs of any sanctions (alongside attempts to reduce risk).

Regarding energy and resource security, Chinese observers highlight the need to diversify energy supplies, deepen new regional and global partnerships, as well as prioritize the domestic development of renewable energy sources – including wind, solar, hydropower, and even perhaps nuclear – along with electric vehicles so as to reduce external vulnerabilities.[51] Additionally, the Belt and Road Initiative and projects such as the Trans-Eurasia rail help to reduce the risks posed by maritime transport routes.[52] A couple of authors also mention the need for strong military capabilities to safeguard economic security in case of contingencies.[53]

Legal and Institutional Measures

Beijing's rhetoric and policies also reflect a strong trend toward greater legalization and institutionalization of economic security measures. Xi has praised a Legalist thinker from the Warring States era for the use of clear laws and regulations to promote prosperity, improve the Qin state's power, and unite the Warring States.[54] Many recent Chinese writings emphasize the crucial need for establishing more systemic institutional mechanisms to handle issues of economic security.[55] Because economic security risks span across multiple sectors, including industries, technology, information and communications, food, and energy, China needs greater inter-ministry cooperation and coordination.[56] S&T innovation also requires improved inter-provincial and inter-departmental coordination mechanisms to enable the pooling of resources and building more efficient nation-wide laboratories and research platforms.[57]

Additionally, Beijing has expanded the legalization of its economic security toolkit.[58] Xi previously called on China to use "legal weapons" in "the struggle against foreign countries."[59] In just the last few years, Beijing has adopted a spate of legal and regulatory measures, as outlined in the table below:

Table 1. China's Expanding Legalization of its Economic Security Toolkit: Examples of Recent Laws and Regulations

Foreign Trade Law	Revised in 2016 to allow China to adopt countermeasures against discriminatory, prohibitive, or restrictive measures taken by another country on trade. This was one of the first legal steps Beijing took to institutionalize its sanctions retaliatory toolkit.
Foreign Investment Law	In effect since January 2020, the FIL is supposed to improve the regulatory environment for foreign investment, but also allows reciprocal measures against restrictions on or otherwise perceived discrimination against Chinese investors abroad, and contains ambiguous language that gives Chinese regulators broad discretionary powers in granting or blocking market access.
Unreliable Entity List	MOFCOM released this list in September 2020, soon after the Trump administration issued executive orders against WeChat and TikTok. The UEL is a mechanism to take punitive measures against identified foreign entities, as a way of imposing costs on these companies that comply with foreign sanctions and blacklists in restricting market transactions with Chinese companies, organizations, or individuals.
Export Control Law	A new law in force since December 2020 that created a unified China's export control regime with the explicit goal of safeguarding "national security and interests"; applies to a broader range of goods, technologies, and services beyond military and dual-use items. It also allows for reciprocal measures in response to foreign governments' export controls.
Rules of Counteracting Unjustified Extra-Territorial Application of Foreign Legislation and Other Measures	Released January 2021 and is similar to the EU's Blocking Statute; MOFCOM leads a working mechanism that would investigate such extraterritorial measures. Through this, Beijing hopes to deter the use of and compliance with secondary sanctions.
Anti-Foreign Sanctions Law	Officially a legal framework for countersanctions and other measures against foreign countries that impose sanctions on China. MERICS describes it as a much more expansive "blocking statute, retaliatory regime and proactive sanctions legislation rolled into one." It is characterized by typically vague language that make red lines hard to know in advance.

Source: Table is based off an excellent analysis and summary table by researchers at MERICS, a prominent European think tank.[60]

Many of these legal frameworks can be seen as countermeasures and retaliatory responses to U.S. and EU policies, such as export controls, restrictions against Chinese companies and investments, and economic sanctions. For example, the Unreliable Entity List punishes foreign companies that comply with foreign sanctions, the Rules on Counteracting Unjustified Extra-territorial Application of Foreign Legislation is meant to counter secondary sanctions, while the Export Control Law limits the export of dual use or national security-related technologies as well as reciprocal measures against foreign export controls. At the same time, analysts have pointed out that some of the legislation, such as the Anti-Foreign Sanctions Law, is potentially more sweeping in its range of targets – beyond governments to include organizations and individuals – and scope, including allowing for proactive coercion or broad regulatory discretion.

Such legalization could be seen as representing a shift in how Beijing approaches economic statecraft. While China has sometimes used regulatory cover for economic coercion, such as food safety inspections of Philippine bananas, it rarely admits a political motive, and by and large it has tended to use informal approaches in its economic statecraft, including attributing punitive actions to nationalistic consumers and patriotic companies.[61] Expanded legalization could reflect a few factors: it may be part of a broader process of institutionalizing and formalizing tools of economic statecraft over time, including as China observes how other countries deploy such tools; it facilitates better coordination and enforcement, given the multiple actors and entities involved; or simply that these are situations where the CCP wants to claim credit in front of their domestic audience for a tough response to foreign coercion by adopting reciprocal policies, and legal frameworks facilitate that. Finally, Chinese analysts have pointed to the valuable signaling and deterrence role of legal anti-sanctions measures amidst great power competition.[62]

Beijing has started to draw more explicitly on legal tools in its economic policies. In July 2023, the Ministry of Commerce announced export controls on gallium and germanium, two critical minerals for semiconductor production, citing the Foreign Trade Law.[63] In May 2023, the Cybersecurity Administration of China announced that American chip manufacturer Micron had failed its cybersecurity review. Citing the Cybersecurity Law of China, it barred Chinese telecommunications companies from purchasing Micron's products.[64] And in February 2023, MOFCOM also announced its first ever use of the Unreliable Entity List, designating Lockheed Martin and Raytheon over arms sales to Taiwan.[65] The two companies had already been previous targets of sanctions, including through the AFSL and bans on the companies' CEOs in 2022. At the

same time, neither of these companies have a meaningful business presence in China, not least because of U.S. restrictions on defense contractors. This suggests that announced sanctions may be more of a symbolic move, and that Beijing remains relatively cautious about executing these legal frameworks. Such caution could be attributed to a reluctance to impose costs on its own economy and companies, as well as the reduced maneuvering room compared to informal measures that has allowed Beijing to quietly ease off coercion without looking like it is backing down. For the Chinese government, legal frameworks could be most useful as a preventive measure to discourage and deter "anti-China" actions.

Scholars have also suggested that Beijing should use international legal mechanisms as a resource. This includes using WTO legal reviews and dispute proceedings to cast doubt on the legitimacy of other countries' policies, capitalizing on BITs and regional agreements to reduce restrictions on Chinese investments, and even encouraging Chinese companies to use local litigation in host countries.[66]

Conclusion

As one Chinese scholar notes, it remains "difficult, if at all possible, to determine how much economic security is sufficient."[67] This is a challenge that many countries and governments face in trying to determine what economic security includes and what poses a threat, and in trying to balance the tensions between open economic exchange and national security concerns. Beijing's official rhetorical elevation of the importance of national security across multiple domains suggests that the domain of economic development and growth will be increasingly viewed through a security lens. At the same time, this is not yet a China that is seeking to decouple from the global economy, which points to both a recognition that China is "big but not strong"[68] – and still needs an open global economy – alongside an apparent confidence that Beijing will be able to position itself to secure its interests relative to other countries.

While Washington and many governments would point to China as the source of heightened risks to their economic security, Chinese writings suggest that Beijing sees risks as being generated by the incumbent hegemon – the United States – seeking to maintain dominance in the face of a rising challenger. That is, despite China's own growing capabilities, its view of economic security is becoming more negative. Certainly, China's foreign policy responses often seem oblivious to its own contributing role in escalatory dynamics. But this interpretation also points to the tit-for-tat security dilemma that is emerging as both parties seek to increase their own national economic security while

perceiving the other side as pursuing more revisionist and expansionist goals. Additionally, such a structural interpretation goes hand in hand with a domestic political economy explanation of China's approach to economic security – a regressive political shift and statist-mercantilist turn under Xi that has heightened the Party's perception of external risks to its own regime survival, and also led to the emergence of a techno-security state.[69]

Xi has stated that "development is the foundation of security, and security is the precondition for development [发展是安全的基础，安全是发展的条件 *fazhan shi anquan de jichu, anquan shi fazhan de tiaojian*]".[70] Recent trends suggest that China's foreign policy will be increasingly guided by an assertive quest for regime security, with security increasingly emphasized over development.[71] At the same time, government policies are starting to have negative effects on the Chinese economy, with sluggish growth, low consumption, and stresses in the financial and real estate sectors. One question is whether such adverse conditions could pay off to achieve longer term economic security, at least in the eyes of the CCP; or whether Xi might be forced to ensure continued economic growth to forestall internal unrest. Some observers argue that China's 'developmentalist' foreign policy tradition – which has been appealing to many countries, despite its imperfections – will not be so easily discarded in the name of security, but rather that priorities will evolve hand-in-hand.[72] For example, Beijing could pursue tighter trade and investment links with resource-rich developing countries that would also boost its energy and food security. We could see a bifurcation of policy sets in which Beijing adopts more legalized deterrent measures against the United States and like-minded countries but continues to emphasize softer development and economic security approaches toward the developing world (and sometimes even opportunistically to U.S. allies to peel off their support for Washington).

One question is whether in Xi's pursuit of "comprehensive national security," notably the redoubling of efforts to guarantee internal regime security and fend off perceived external threats, longer-term economic security could in fact be undermined. Cracking down on foreign firms, for instance, would make China less attractive to investors, thus slowing growth and reducing its centrality in the global economy, a situation which has often facilitated Beijing's coercive and political clout. Moreover, efforts to weaponize interdependence could generate even more balancing behavior that China would hope to avoid, whether in terms of protectionist onshoring impulses or in terms of China being able to access the technology and markets that it still needs. Thus far, there seems to be relatively limited considerations in China of potential long-term blowback and how other countries may respond that could ultimately worsen economic security concerns.

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Section 2

The Koreas Navigate Critical Minerals, Technology, and Great Power Relations

South Korea: Caught in the Crosshairs of U.S.–China Competition Over Semiconductors

By Paul Triolo

Introduction

A number of countries with advanced semiconductor industries are caught in the middle of the growing U.S.-China competition in technology that is focused on advanced computing. While some countries housing the headquarters of key technology companies in the toolmaking sector, including Japan and the Netherlands, have been drawn into the competition previously, but more deeply recently via last year's massive October 7, 2022 export control package unleashed by the U.S. Commerce Department, South Korea and its national champions, Samsung and SK hynix, have arguably incurred some of the most significantly pressure. Those firms have billions of dollars of sunk investment in China-based facilities producing cutting edge memory, and the future of these facilities remains in doubt after a series of new U.S. measures starting with the October Surprise.

South Korean companies are also players in other parts of the global semiconductor supply chain, including semiconductor manufacturing tools, and China remains an important market for both components and electronic devices. Each country caught between the United States and China in the technology cold war faces difficult trade-offs in determining how best to support its leading companies, while navigating changing and often what are viewed as arbitrary decisions coming from Washington that have already significantly disrupted global supply chains. Finally, at the same time as U.S. export controls are having a major impact on the ability of South Korean companies to retain business operations and market access in China, major front end manufacturers, particularly Samsung, are also looking to expand their operations in the United States and benefit from U.S. CHIPS Act funding. All of this puts South Korea in one of the more complex positions as the industry faces continued restructuring, buffeted by both export controls and industrial policies. This paper will explore the dynamics of these twin challenges for both Seoul and South Korean technology players.

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The U.S.-China Cold War: Focus on Advanced Computing Roils IT Supply Chains

U.S.-China technology competition has been ramping up since the early days of the Trump administration in 2017. The U.S. Trade Representative in August 2017 launched a Section 301 investigation of China's trade practices, kicking of a trade war, and resulting in the imposition of massive tariffs by both sides. Major issues around technology, such as market access, subsidies, and cyber theft of IP were issues originally part of the U.S. investigation, but negotiations to address these tough topics were pushed out to a notional Phase 2 negotiations, which have never materialized. In the meantime, U.S. officials in the Trump administration pushed for expansion of export controls in key sectors where U.S. companies held a strong position, particularly semiconductors. Dozens of Chinese firms were added to the Commerce Department's Entity List—requiring U.S. suppliers to apply for export licenses—during the Trump era.[1] In addition, late in the Trump administration, U.S. officials for the first time deployed major extraterritorial export controls bilaterally, via the foreign direct product rule (FDPR), which initially targeted only Huawei, and required U.S. and other suppliers globally to apply for a license to produce semiconductors on behalf of Huawei.[2]

The extension of extraterritorial controls, immediately expanded the U.S.-China technology competition well beyond the bilateral relationship, ensnaring companies in other jurisdictions in the growing regulatory expansion. Initially the major foundries, TSMC in Taiwan, Samsung and SK hynix in South Korea, which had been suppliers to Huawei were caught in the expanding U.S. export control net. Under the U.S. FDPR rule for Huawei, they could not continue to manufacture semiconductors for Huawei without a license. U.S. licensing policy in the Trump era and early in the Biden administration was fairly permissive for major suppliers of commodity semiconductors – general purpose semiconductors like CPUs and memory, as opposed to specially designed application specific integrated circuits (ASICs) – to Huawei, while TSMC cut off support to Huawei and its chip design arm HiSilicon. TSMC had been manufacturing all of HiSilicon's chip designs for Huawei's four business lines, consumer devices, telecommunications infrastructure, cloud service, and AI.[3]

The Biden administration initially continued most of the policies from the Trump era with respect to semiconductors and Chinese end users. There was some reexamination of licensing policy around Huawei suppliers, and dozens more Chinese firms ended up on the Entity List during the first two years of the Biden administration. But a major inflection point was reached in the Fall of 2022. Two major events – the articulation of a new U.S. policy on technology

controls related to China, and the release of a major new package of export controls – occurred that would result in more U.S. allies and non-U.S. companies, including from South Korea, being dragged into U.S. attempts to draw lines around China's domestic semiconductor industry capabilities, and limit exports of some advanced chips to Chinese end users.

The policy rationale for U.S. controls on semiconductors and semiconductor manufacturing equipment, as well as other areas of advanced computing, was first articulated in September and October 2022 by U.S. National Security Advisor Jake Sullivan. Sullivan's formulation came in three distinct but related parts: First, the Unites States, Sullivan asserted, would no longer seek a sliding scale of advantage over China in certain advanced technologies, but an absolute advantage.[4] Second, Sullivan characterized U.S. policy with respect to China and technology as "small yard, high fence", an idea that had been kicking around in academia for some time. Proponents of this policy held that the United States should tightly control only a small subset of critical technologies.[5] Third, Sullivan stressed that advanced compute, biotechnology, and green technology, were there pillar technologies that were henceforth of high national security concern to the United States.[6]

Advanced compute included sectors such as high performance computing and supercomputers, artificial intelligence, semiconductors, and semiconductor manufacturing. On October 7, 2022, the Commerce Department dropped a major package of controls (hereafter the October Package) that attempted to control many aspects of advance compute related to China's domestic capabilities and ability to purchase advanced semiconductors from global suppliers. It was an unprecedented attempt by one country to essentially freeze the capacity of another country across a number of technology domains that were all part of complex global supply chains, large parts of them centered in Asia. The new controls necessarily meant many other countries would henceforth become embroiled in U.S. efforts to contain China's technology rise in advanced computing. In addition to Japan and the Netherlands, and by extension Germany, France and some other European countries part of semiconductor manufacturing tool supply chains, in Asia, Japan and South Korea were the other countries whose companies were most impacted by the October Package.

By the time of the October Package then there were three major U.S. policy initiatives and measures that were having a major impact on South Korean semiconductor firms:

- **Multilateral controls** on advanced manufacturing equipment, primarily advanced lithography gear.
- The October Package controls on **end use and domestic persons**.
- **Guardrails** around the August 2022 CHIPS and Sciences Act, restricting a certain level of investment in China-based facilities for companies accepting federal incentives.[7]

Each of these initiatives and its impact on South Korean firms will be examined below.

Multilateral Controls on the Most Advanced Lithography Systems Complicates Upgrade Roadmaps

Even prior to the release of the new U.S. controls, the China-based operations of both Samsung and SK hynix had been significantly impacted by U.S. efforts to control advanced chip making technology. Those facilities, primarily in Wuxi, are key elements of both firm's global operations, and manufacture an appreciable proportion of NAND for Samsung, and DRAM and NAND for SK hynix—estimates put the China-based memory production for each firm at around 40 percent of total global output as of 2022.[8]

The United States, working within the Wassenaar Agreement-- a voluntary export control regime that promotes transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies—had gotten agreement in the 2019 timeframe to restrict the access of China-based companies to advanced lithography equipment from Dutch giant ASML.[9] The U.S. restrictions meant that Chinese foundry companies, including leader SMIC, would not be able to purchase ASML's extreme ultraviolet (EUV) lithography systems, required for making semiconductors at below roughly the 7 nm node.[10] While the primary targets were Chinese domestic foundries, such as leader SMIC, the controls were country-based, which has meant multinational manufacturers with major facilities in China, including Samsung and SK hynix, have also been prevented so far from upgrading their China based operations.

The use of EUV for memory is following a complex roadmap that is very different from logic chips of the type used in advanced smartphones. For logic chips, EUV has been used for some time by TSMC, Samsung, and Intel, to manufacture chips starting at around 7 nm. While existing dense ultraviolet (DUV) lithography systems can be used for some layers of a semiconductor stack at 7 nm, EUV is a much more efficient and ultimately cost effective solution for moving to more advanced nodes.

For memory, the story is different. Here is a more detailed notional roadmap for DRAM and NAND memory companies and the use of EUV systems, which runs to 2028 and shows how extended roadmaps are for advanced technology processes. For example, for EUV, the roadmap is likely to be something like this: 2023-2024: R&D and pilot production of EUV lithography for 1-gamma and 1-delta nodes; 2025-2026: Introduction of EUV lithography for select 1-gamma and 1-delta products; 2027-2028: Widespread adoption of EUV lithography for all DRAM products. For flash NAND, the roadmap will likely look like this (though most of the advances currently are via increased numbers of layers): 2024-2025: R&D and pilot production of EUV lithography for 3D NAND nodes; 2026-2027: Introduction of EUV lithography for select 3D NAND products; 2028-2029: Widespread adoption of EUV lithography for all 3D NAND products.[11]

Major memory leaders, including Samsung, SK hynix, Micron, Western Digital and Kioxia, are all investing in EUV research and systems. For example, Samsung Electronics is already using EUV lithography to manufacture its DRAM chips, and is working with ASML to apply the Dutch firm's next generation high numerical aperture (NA) EUV lithography system for future DRAM production.[12]

The U.S. controls on EUV, however, have had a major impact on the plans for Samsung and SK hynix to continue to upgrade their China-based manufacturing facilities. This is because the Wassenaar controls are country specific, meaning that SK hynix, which has tried to get a license for its Wuxi facility, was not able to get approval because of concerns about its China-based facility.[13] The Wassenaar controls on EUV have been in place for a decade,[14] but it was not until around 2018 that the Dutch government apparently denied a license to SMIC to purchase an EUV system—this decision is still not public, and likely came after SMIC had already obtained an initial contract from ASML to purchase the system. The Wassenaar controls do not include coordination of licensing, and the Dutch government could technically make a decision to issues a license on its own. But U.S. officials reportedly shared classified information with the Dutch government as part of the effort to compel The Hague to deny the license.[15] SK hynix may also have attempted to get a license for its Wuxi facility, but this was also apparently torpedoed by the Dutch government, likely at the behest of the U.S. officials. The issue of SK hynix's ability to procure ASML EUV systems for its China facilities appears to have initially became of high concern to SK hynix leadership in 2021 and was almost certainly a major factor in the July 2021 visit to Washington, DC by SK Hynix Chief Executive Lee Seok-hee, who reportedly raised the issue with U.S. officials.[16]

Critically, the argument that U.S. officials likely made was that despite the EUV system going to a foreign multinational facility in China, and under foreign company control, there was the risk of some diversion of the system, or at a minimum some know-how about how to operate EUV lithography gear. Industry experts are highly skeptical that there would be any fear of diversion of an entire EUV system from a China-based facility operated by a multinational corporation.[17] Such companies as SK hynix and Samsung, maintain tight security around manufacturing systems in general, and around EUV systems in particular, given the high costs and sensitivity around these systems. It remains unclear whether SK hynix actually attempted to purchase an EUV system from ASML, and whether ASML applied for a license to the Dutch government that was rejected due to U.S. government pressure.

The October Package: South Korean Firms and Facilities in China among First Collateral Damage

In any case, even before the much more controversial elements of the October Package impacted the operations of multinationals in China manufacturing memory, the key firms already faced a major disruption of their roadmaps to upgrade China-based facilities with EUV seemingly off the table for China. The October Package added additional complications for the Korean producers in China by including memory in the end use controls that were a critical part of the package. In addition, the new rule included licensing requirements for domestic personnel working at facilities in China where production processes for 16/14 nm for logic, 128 layers for NAND, and 18 nm for DRAM were being deployed.[18] These so-called domestic persons controls were unprecedented, and resulted in all U.S. toolmakers pulling personnel from the facilities they were supporting in China, primarily founder leader SMIC and NAND leader YMTC, and DRAM leader CXMT.

At the same time, US officials appear to have belatedly realized that the controls would also require U.S. and foreign toolmakers to pull service personnel from the Samsung and SK hynix memory facilities, and at the Intel operated facility in Dalian owned by SK hynix that was also a major produced of NAND memory. Over the weekend of October 8, Commerce Department officials scrambled to come up with a solution, eventually issuing a non-public letter that exempted the multinational facilities in China for one year from the domestic persons and other end use controls. Industry officials described a situation where the companies were minutes from having to pull personnel from the Korean facilities and the Dalian fab operated by Intel but owned by SK hynix.[19]

In addition, for many firms part of the semiconductor manufacturing supply chain, particularly tool makers, the inclusion of memory in the October Package came as a major surprise—Commerce officials had apparently not mentioned that memory would be included during previous discussions with industry around the drafting of the new rule.[20] Memory as a commodity, without real legacy node production, was apparently included at the last minute. The justification for including memory remains unclear, but likely centered on an older argument that Chinese memory companies, which have been recipients of major subsidies from the Chinese National IC Investment Fund, had the potential to eventually produce memory at a lower cost than western firms, including some firms that were trusted suppliers to the U.S. government and defense industry.[21] Many industry officials and former U.S. export control officials dispute this reasoning,[22] and at the time of the controls, YMTC held only a very small share of the global NAND market, and was described by some as 4 generations and 8 years behind the cutting edge. It would appear highly unlikely that either YMTC or CXMT posed a threat to the dominance of western firms in either NAND or DRAM at the time of the release of the October Package.

CHIPS Guardrails Pose Major Challenge for Foreign Multinationals Manufacturing Chips in China

Finally, the as part of the so-called "guardrails" around the U.S. CHIPS an Science Act, passed in August 2022, a package that provides $52 billion in grants and incentives for companies willing to cite front end facilities in the United States at both advanced and mature nodes, along with key companies part of their supply chains, Commerce officials decided to restrict the ability of companies receiving U.S. funds to upgrade and expand any facilities they were operating in China.

The final rule was issued in September 2023. The rule prohibits recipients of CHIPS incentives funds from using the funds to construct, modify, or improve a semiconductor facility outside of the United States; restricts recipients of CHIPS incentives funds from investing in most semiconductor manufacturing in foreign countries of concern for 10 years after the date of award; and limits recipients of CHIPS incentives funds from engaging in certain joint research or technology licensing efforts with a foreign entity of concern that relates to a technology or product that raises national security concerns. Furthermore, if these guardrails are violated, the Department can claw back the entire federal financial assistance award.[23]

The key provisions of most concern to South Korean government officials and companies are the specific requirements for expansion of both "advanced" and "legacy" facilities in "foreign countries of concern," meaning China. These provisions are as follows:

- **Advanced facilities.** *The final rule ties expanded semiconductor manufacturing capacity to the addition of cleanroom or other physical space and defines material expansion as increasing a facility's production capacity by more than five percent.* This threshold is intended to capture even modest transactions to expand manufacturing capacity but allows funding recipients to maintain their existing facilities through normal course-of-business equipment upgrades and efficiency improvements.

- **Legacy facilities.** The statute places limits on the expansion and new construction of legacy facilities in foreign countries of concern. *The rule provides details regarding this restriction, prohibiting recipients from adding new cleanroom space or production lines that result in expanding a facility's production capacity beyond 10 percent.* The rule establishes a notification process for recipients that have plans to expand legacy chip facilities so the Department can confirm compliance with the national security guardrails.

Prior to the issuance of the final rule, South Korean government officials had sought clarity from the Biden administration on how the guardrails will work, given the significant investments that South Korean giants have in China-based facilities. Earlier in 2023, there were media reports that South Korean officials were pushing for the 10 percent figure. The issue was even raised by South Korean President Yoon Suk Yeol as early as March.[24] The guardrails and other provisions of the CHIPS Act were the subject of numerous meetings between Commerce Department officials and South Korean government officials between March and September. Both Samsung and SK hynix are taking part in CHIPS Act funded projects—Samsung has been expanding facilities in Texas for some time—and are concerned about a number of other "guardrails" around CHIPS Act funding. In late April, for example, Industry Minister Chang-Yang Lee made a request to Raimondo to help resolve the uncertainties around subsidy requirements, such as providing "excessive" corporate information and sharing excess profit with the U.S. government, according to a statement from the South Korean Ministry of Trade, Industry, and Energy.[25]

These concerns are also a result of other actions by the Commerce Department in recent years. For example, in late 2021, the Commerce Department, seeking to better understand supply chain issues in the wake of the global semiconductor shortage, issued a request for information (IFR) to large semiconductor firms, including Samsung and SK hynix. The requests for information in the IFR were deemed sensitive and proprietary by industry players, given sensitive non-disclosure agreements companies sign with their customers. South Korean officials and leading companies are sensitive to this issue also in the CHIPS Act context, where U.S. officials are asking for a lot of data associated with supply chains, technology processes, and customers as part of the applications. The CHIPS Act's broader guardrails also call for some clawing back of "excess profits." without more clearly defining how these would be defined. Companies such as Samsung and SK hynix, in a cyclical business-like memory, almost certainly object to this, because profitability is not determined on a year-to-year basis, for example, but over the lifetime of a particular facility.

As if these three major U.S. policy choices were not complex enough for South Korean firms to navigate, Chinese retaliation against U.S. export controls resulted in a further complication for the Korean majors in the Spring of 2023. In retaliation for the inclusion of memory leader YMTC on the Entity List in December 2022, and the impact of the October Package on YMTC, China launched a cybersecurity probe of U.S. memory leader Micron in March, and then declared that Micron had failed the review, resulting in a ban on Micron products being used by Chinese critical information infrastructure operators (CIIOs).[26] The Cyberspace Administration of China (CAC), which conducted the review, has never clarified the exact scope of CIIOs, but the ban means that many Chinese companies are asking their suppliers for products that do not contain Micron components. As part of the U.S. government response, U.S. officials have apparently discussed the issue with South Korean officials and urged South Korean companies to avoid "backfilling" orders for Chinese customers that no longer wish to use Micron products.[27]

This demand was met with some consternation by South Korean officials and companies. Companies cannot restrict sales to certain customers, and it will be difficult for Samsung and SK hynix to determine whether a particular customer sale actually constitutes "backfilling." Memory products are sold primarily through distributors, making it even more difficult to make such a determination. Memory sales in general are expected to expand during the second half of 2023 and into 2024. As Martin Chorzempa noted in a recent paper: "Therefore, it is not clear how SK hynix or Samsung would know if a new order coming from China was a regular order or a backfill that otherwise would have gone to Micron."[28] Given the cyclical nature of the industry, and the

difficulty of tracking and understanding supply chains and distributors, it is unlikely that the U.S. government will pursue this issue with South Korean companies unless Micron's situation deteriorates rapidly and there is more clear evidence that South Korean firms are benefitting.

South Korean Industrial Policy Seeks Expanded Semiconductor Industry but China Issues Will Remain Problematic

In fact, South Korean officials remain concerned about all the U.S. government measures and policies that have impacted South Korean giants in the semiconductor industry. South Korean officials for example, are concerned that U.S. government officials have not provided sufficiently clear justifications for the inclusion of memory in the October Package.[29] South Korean companies such as Samsung and SK hynix would like to continue operating and upgrading their China-based facilities, which already represent sizeable capex expenditures for the companies, in the 10s of billions of U.S. dollars. In the highly competitive memory business, companies need to upgrade facilities regularly to stay competitive. South Korean officials are also almost certainly concerned about the end use controls part of the October Package. The end use controls for NAND and and DRAM, for example, are targeted at production processes that are not the most advanced in the industry, and South Korean officials would like to see more clarity around what types of memory technologies the United States intends to control going forward—hence they believe that the definition of what constitutes advanced memory must be updated.

South Korean officials and others in the industry, in discussions with U.S. officials, have stressed that memory is a commodity product, and that the type of memory they are producing in China is not typically used for supporting military end uses and is hard to tie directly to other areas like human rights abuses. In addition, they would argue that South Korean companies have heavy controls to protect technology being used in China. South Korean officials also argue that the presence of South Korean companies in China is a positive, as Korean companies need to be in China to understand how Chinese competitors are developing technology, and enable Korean forms to better keep ahead of Chinese competitors.

In October 2023, the Biden administration finally determined a way for extending the one-year exemptions granted to South Korean multinationals in October 2022. On October 17, the Commerce Bureau of Industry and Security issued a notice that the China subsidiaries of Samsung and SK hynix would be added to the Verified End User (VEU) list. Designated VEUs located in eligible destinations to which eligible items may be exported, reexported, or transferred (in-country) under a general authorization instead of a license. Here, the new language for

the VEU for these firms noted that all items were ok to ship to these locations "except EUV equipment."[30] The measure was significant, in that it extends indefinitely, but subject to review, the exemption from parts of the October Package by allowing U.S. and other toolmakers to ship to Samsung and SK hynix China-based facilities without having to get a license. It also allows personnel from toolmakers to remain at these facilities, even though they may be working at or above the end use nodes specified in the October Package.

Despite the Commerce Department action that provides breathing room for Samsung and SK hynix operations in China, it remains unclear whether South Korean would support attempts to set up new multilateral regimes to control dual-use technology, such as semiconductors and manufacturing equipment. In the wake of the dysfunction in the Wassenaar Agreement, with Russian participation meaning the group is not meeting and cannot easily make new decisions, some have called for some the establishment of new multilateral mechanism to broader export control discussions around advanced technologies that have broad civilian uses such as semiconductors, manufacturing equipment, and AI. Many other countries, including the Netherlands and Japan, along with the EU, are likely reluctant to sign up for a new organization targeting dual-use technologies that would be quickly seen as anti-China, and it would be very difficult to get agreement among the key players on which technologies merit control for national security justifications.

The future role of South Korean companies in the China market will remain complex, and a function of a number of different considerations, both at the corporate level, and within the South Korean government. On the one hand, the South Korean government has its own industrial policy initiatives, similar to the CHIPS Act, that will provide major subsidies for leading technology firms, including Samsung and SK hynix. On the other hand, Seoul almost certainly sees U.S. controls that impact Samsung and SK hynix revenue in China and more broadly as working against the ability of those companies to invest more in South Korea based facilities, as well as new facilities in the United States under the CHIPS Act. Given this, South Korean government officials could at some point decide to lobby the Biden administration and subsequent administrations to consider reversing the restrictions on EUV equipment for the China-based facilities of Samsung and SK hynix to enable them to continue upgrading and operating these facilities to keep them competitive.

In this process, SK hynix has also played a role more broadly in the memory sector, as a shareholder in a consortium of companies that hold ownership in Japanese memory major Kioxia, through a complex financial structure overseen

by investor Bain Capital. In October 2023, a deal that would have seen Kioxia merge with U.S. memory giant Western Digital was blocked, at least temporarily, by SK hynix management. While the U.S. and Japanese government were very supportive of the deal, seeing it as a major benefit to growing U.S.-Japanese collaboration in the semiconductor sector, SK hynix management apparently opposed the deal to protect its investment, and was also concerned that the merger would create the top NAND company globally, with Samsung second, and SK a more distance third. The role of the South Korean government in this process remains unclear, as Seoul likely favors some type of three way collaboration with Tokyo and Washington in the semiconductor sector, as part of broader "friend shoring" efforts, and allowing one of its major semiconductor companies to block a deal favored by Tokyo and Washington did not appear to be going down well in those two capitals.

An additional complication is how the South Korean government will assist its leading companies to continue to expand and dominate these key sectors, particularly should the Western Digital-Kioxia merger eventually occur. Over the past year, Seoul has rolled out the K Chips Act[31] which would provide major tax breaks to companies, and looks to particularly, or primarily, benefit Samsung and SK hynix. The legislation increases the tax credit to 15% from the current 8% for major companies investing in manufacturing facilities – smaller and medium size firms could see a tax break of up to 25% from 16% now. The qualifications for access to tax breaks would appear to favor large players pursuing advanced node production, and so are likely to primarily benefit Samsung and SK hynix. It seems likely that these incentives and the uncertainty about China-based facilities will encourage greater investment in Korea-based facilities than would have otherwise been the case. However, from a diversity of supply chain point of view, concentrating even more memory production in South Korea, along the border with North Korea, may have other national security implications for both the United States and South Korea, and for the industry as a whole. One key issue is whether these new incentives will help to offset what will be substantial losses eventually in China if both memory giants have to write off existing facilities over the next five years.

Conclusion: Uncertainty Will Continue to Cloud the Future

The memory sector is likely to continue to be contentious when it comes to export controls. At the same time, memory products remain a critical issue for Chinese electronic device makers, as the U.S. controls mean that neither YMTC or CXMT or other Chinese memory firms can supply advanced memory for applications like cutting edge smartphones. In September, leading Chinese

telecom firm Huawei released several new smartphones and tablets based on the Kirin 9000s. Hardware teardowns of the phone revealed that some of the NAND and DRAM used in the phone came from SK hynix, and the firm has launched an investigation of how SK hynix memory ended up in the Huawei device.[32] It appears that the memory in question was stockpiled by Huawei, sometime in the 2020 period, and SK hynix has insisted that it has complied with U.S. export controls, meaning it would not have been able to ship to Huawei after September 2020. It is possible that Huawei obtained DRAM and NANA via distributors after this date, without the knowledge of SK hynix.

This episode illustrates that particularly with the new restrictions around U.S. DRAM leader Micron, South Korean memory providers will continue to be very important for Chinese device makers, including both those on the Entity List not subject to the FDPR, and those that remain off the list. However, even though the extension of Verified End User status to Samsung and SK hynix has relieved some of the near-term uncertainty around the future disposition of the firms' China-based facilities, as noted above, there remains considerable uncertainty about the future status of these manufacturing operations.

In addition, for two of South Korea's leading firms, the future mix of investments and operations in South Korea, the United States, and China will add major complications to their long-term roadmaps for developing and remaining competitive that were not on the drawing board only four years ago. In addition to the companies' China facility wind down problem, both must contest with the challenges of developing viable commercial support ecosystems and supply chains in the United States. In addition to the above mentioned concerns of South Korean government officials and the companies around information disclosure and profit sharing related to CHIPS Act subsidies, both companies also face labor and workforce challenges, along with cultural issues associated with building a larger presence in the U.S. market. Like the challenges TSMC has faced in Arizona, Samsung will also face issues related to local contractors' lack of experience in constructing and maintaining facilities and systems associated with cutting edge manufacturing facilities, and the lack of economies of scale in terms of technical support and suppliers that they have developed at large complexes in their home countries.

Given the inability to put together a long-term technology or commercial roadmap for Wuxi, Xi'an, and Dalian, South Korea firms cannot conduct normal upgrade schedules, and a certain point will have to decide whether to abandon or sell the facilities in China. This will come at a considerable cost, and the uncertainty of finding a buyer who would be both willing and able to buy facilities

in China operating under major constraints. Chinese firms would by definition not be able to buy facilities operating above the end use controls of the October 7 package, for example. There are few other potential buyers of high-end manufacturing facilities that require considerable maintenance to operate and marketing acumen to make successful. It seems likely that the U.S. and South Korean governments could at some point work out a compensation plan for SK hynix and Samsung, given the high costs and the unprecedented situation where U.S. government policy essentially dictates when a company would need to abandon a multi-billion long-term investment. The decisions of the Biden team thus will long outlive the current administration and continue to create headaches for U.S.-South Korean relations well into the end of the decade.

Endnotes

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The Raw Materials of Economic Security: South Korea's Evolving Energy and Critical Minerals Policies in an Era of Disruption

By James Bowen

Introduction

Economic security begins with raw materials security. Few states can appreciate this more than South Korea. Korea achieved its postwar economic miracle despite a profound lack of domestic energy and minerals. Yet a correspondingly intense foreign dependence has remained an acute concern, particularly during periods of upheaval. Recent events have returned resource insecurity to the forefront of Seoul's attention. Covid-19 and Russia's war in Ukraine compounded long-standing economic and political fragmentation, threatening the efficient and apolitical operation of markets and supply chains. The transition to clean energy has also invited a raft of new cross-border concerns.

This article explores how Korea, particularly under current President Yoon Suk-yeol, has responded to its rising resource challenges. It begins by exploring Korea's historically intense energy and minerals interdependencies and how recent phenomena complicate past management of these. This includes consideration of commitments under Yoon's *Strategy for a Free, Peaceful and Prosperous Indo-Pacific Region*.

The article then closely examines Korean policy responses in two increasingly interrelated areas: energy security and critical minerals. International exposure—coupled with a resource-intensive economy—defines both challenges. Authoritarian states' influence on trade and global markets worsens insecurity in each. Some policy goals span the energy and critical minerals spectrum, including diversifying trade and investment with trusted partners.

Korean energy security policies dramatically shifted following the chaos unleashed by Russia's war in Ukraine. They have simultaneously had to adapt to the escalating climate crisis and need for rapid clean energy deployment. Yoon has correctly argued that optimal policy responses can respond to both these challenges simultaneously. The article calls the resulting policy goal "green security."

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Transitioning away from Korea's heavy dependence on imported fossil fuels will not be easy. Seoul's past inability to achieve both growth and decarbonization under the longer-standing "green growth" banner is proof of this. National policymakers remain married to a manufacturing-heavy, export-oriented development model. Even national decarbonization pathways, including strong support for hydrogen and, under Yoon, nuclear at the expense of renewables, appear at least partly designed to ensure minimal disruption of this approach.

Korea's critical mineral concerns are similarly informed by issues of scarcity and authoritarian influence. The energy transition, among other trends, has seen global demand for certain minerals outpace supply. Korea's neighbor, and sometimes foe, China has amassed unparalleled control over value chains from processing onwards. Beijing also has a history of disrupting cross-border commerce both unintentionally and for intentional gain.

Korea's contemporary critical minerals insecurities can appear more intense than its fossil fuel equivalents. Yet they are ultimately more manageable through policy intervention. The overarching priority is accelerating and diversifying global supply chains. Korea has reinvigorated its program of resource diplomacy to aid this process. More considerable intervention may, however, be required. Seoul's critical minerals policies must also find better ways of managing tensions from rising geoeconomic and geopolitical competition.

The article concludes by arguing that the disruptive forces now impacting Korea's resource security are larger and more complicated than those it has previously overcome. There is an understandable urge for Seoul to protect the essential character of its economic miracle in spite of this. Yet some degree of transformational change may prove unavoidable.

Resources: The Fragile Bedrock of Korea's Economic Miracle

Korea's former United Nations Secretary-General Ban Ki-Moon once noted how the "advent of affordable modern energy" helped lift his country from postwar poverty into the ranks of advanced economies.[1] Export-focused manufacturing industries such as steelmaking, shipbuilding, and car-making have been vital to this journey and today generate about 30 percent of GDP.[2] This has given Korea the highest industrial energy use in the OECD, as well as high demand for minerals.[3]

Most resources powering Korea have come from abroad. Korea has limited domestic energy and mineral reserves, and imports meet 94.8 percent of resources consumption.[4] Korea's import dependence for coal, oil, and gas—which provide

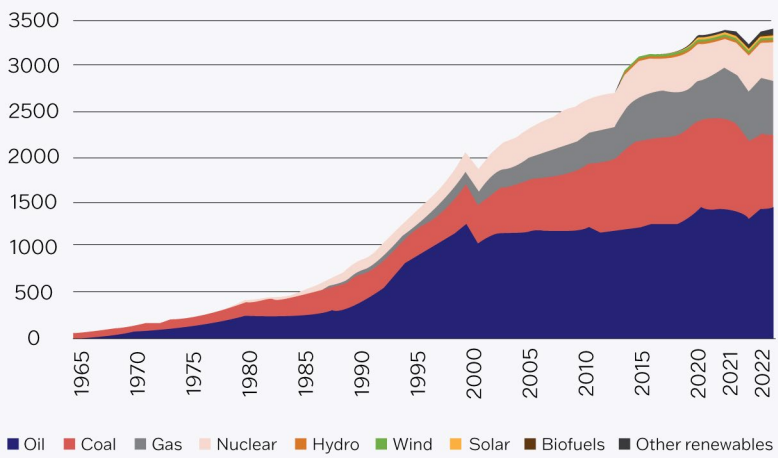
more than 80 percent of its primary energy—is 98 percent.[5] Certain locations and routes also play an outsized role in trade. Almost 60 percent of Korean crude oil comes from the Middle East.[6] Korea also depends on the sea for all its oil and gas.[7]

High-import dependency creates vulnerabilities. It incurs higher and more volatile costs. Supply shortfalls and price spikes can come either through market inefficiencies or physical disruptions. Overdependence on certain suppliers—especially authoritarian economies which can, and do, manipulate resource flows—and contested trade routes adds to the risk. About 64 percent of Korea's oil and 46 percent of its gas transit the South China Sea.[8]

Oil has inflicted particular pain on Korea's economy. A 2011 study found Korean GDP contracted at more than twice the OECD average following oil shocks up to that time.[9] The Arab oil embargo of 1973 saw Korea's annual growth rate of 15 percent (still its highest-ever recorded) drop to about eight percent within two years.[10] Social unrest often follows oil price spikes. In 2008, President Lee Myung-bak was confronted with thousands of striking truck drivers as fuel prices rose 60 percent in six months.[11]

Despite these challenges, Korea has generally maintained its imported resource-dependent economy. It has, however, had some success in minimizing or at least dispersing vulnerabilities. It has, for example, diversified its energy mix through greater use of gas, imported as liquefied natural gas (LNG), and nuclear energy (see Figure 1).[12]

Figure 1. Korean Energy Consumption by source (TWh)



Source: Author's calculations from Ritchie & Roser (2023).[13]

Seoul has also sought to improve its access to international energy and minerals through "resource diplomacy." This was most notable in response to the early 21st century's commodities boom. President Kim Dae-jung (1998-2003) established Korea's first *Overseas Resources Development Basic Plan*, and Presidents Roh Moo-hyun (2003-2008) and Lee (2008-2013) sanctioned significant state-owned enterprise investments, including in Madagascar's Ambatovy nickel mine, Panama's Cobrepanama copper mine, and Australia's Prelude floating LNG project.[14] Resource security also partly motivated numerous Korean bilateral trade agreements with resource-rich nations in the early 2000s.[15]

Resource diplomacy has, however, fallen from favor in more stable times. Scrutiny of disappointing returns on investment, public debt accumulation, and even corruption, saw mass asset sell-offs under President Park Geun-hye (2013-2017) and further downgrades under Moon Jae-in (2017-2022).[16]

Korea has, on the other hand, unequivocally benefitted from participating in and helping sustain highly globalized and dynamic markets—financial in addition to physical—for energy and minerals. Development of these has often accelerated in the wake of major commodities shocks and, through a mix of inbuilt responsiveness to price signals and deliberate policy interventions, helped to minimize the severity of future disruptions.

Eventual positive impacts of the Arab oil embargo included oil production spreading to new, including more democratic, frontiers, a more diverse global energy mix, and enhanced energy efficiency. The creation of the International Energy Agency (IEA), which Korea joined in 2001, was emblematic of increased energy security policy coordination, largely among advanced economies. The IEA defines energy security as the "uninterrupted availability of energy sources at an affordable price."[17] It also distinguishes between short- and long-term security. The former concerns "the ability of the energy system to react promptly to sudden changes in the supply-demand balance," while the latter targets "timely investments to supply energy in line with economic developments and environmental needs."[18]

Responses to the early-2000s commodities boom—which followed explosive economic growth in China and other Asian economies—also helped boost security. High prices made the extraction of previously uneconomic resources, including U.S. shale oil and gas, profitable, creating more abundant, affordable, and—owing to a greater presence for liberal over authoritarian producers—somewhat depoliticized trade.[19]

China's management of growing resource insecurity in the early 2000s also delivered significant results.[20] China's rapid, dramatic cost-lowering development of clean energy technologies such as solar panels and electric vehicles (EVs) has largely benefitted the global energy transition. Typically, however, Beijing has ensured its companies enjoy a commanding lead in associated markets, by leveraging benefits of scale and strategically minded state support across the industrial ecosystem. As this report notes, China's intense control of clean energy supply chains extends to the raw materials of key technologies.

Energy, Minerals, and Economic Security Amid Global Disorder

Korea's resource-intensive and import-dependent economy has survived various storms and often benefitted from a new sense of calm that followed. But a confluence of largely novel factors is testing Seoul's resolve once more. Concern around security of key resources is again spiking on a global level. Traditionally liberal governments have sought renewed resilience as part of wider-ranging policies for 'economic security'.[21]

Proponents of economic security typically seek insulation from supply chain disruptions such as those after Covid-19 and Russia's war in Ukraine. The latter had particularly profound impacts on global energy—Russia is among the top two to three global producers and exporters of both oil and gas, and top five for coal.[22] Moscow deliberately reduced gas flows to Europe ahead of its invasion. Subsequent chaos affected all fossil fuels, and interlinked electricity markets, resulting in what the IEA called the "first truly global energy crisis."[23]

Economic security proponents oppose the subversion of trade and investment rules and weaponization of economic interdependencies. China looms larger than Russia in many states' thinking on these counts. Some responses to the issue defend and seek to improve the liberal economic order, while others essentially emulate perceived transgressions. The United States, most notably, has adopted a "new Washington consensus"—including through the potentially US$1 trillion-plus Inflation Reduction Act (IRA) clean energy spending program—which focuses more on promoting domestic industry, and geoeconomic realignment, over free trade.[24]

These disruptions have also occurred against a backdrop of the world needing to more rapidly decarbonize amid a growing climate catastrophe. Post-Ukraine Europe, in particular, has realized the significant energy security co-benefits of accelerating deployment of cheap, indigenous renewables. This has allowed more rapid decoupling from Russia and other volatile fossil fuel suppliers, and their influence on energy markets.[25] Government and industry are also jockeying to control new or, as with nuclear, potentially revived technology markets. This

has produced new resource security concerns, even as others erode. The most intense anxiety surrounds 'critical minerals,' which underpin clean technologies such as batteries for EVs and grid storage, and a variety of non-energy sectors including semiconductors and advanced weapons systems.

Global critical minerals supply is insufficient to meet expected future demand. The IEA estimates mining for clean energy must at least quadruple to a total of more than 28 million tons per annum by 2040 to meet climate goals.[26] Extraction is highly concentrated: Australia extracts half the world's lithium, Indonesia a third of its nickel, China 60 percent of its rare earths, and the Democratic Republic of the Congo 70 percent of its cobalt.[27] But the most alarming concentration is downstream from mining, where China dominates.[28]

The Yoon Suk-yeol administration has embraced the economic security concept and applied it to its energy and mineral pursuits. This sits somewhat uncomfortably with the president's avowed liberalism, or even libertarianism—Yoon has cited U.S. economist Milton Friedman as a major policy influence[29]—yet it responds to exigent circumstances. It is also at peace with Yoon's conception of Korea as a 'global pivotal state,' which engages more expansively and assertively, aligns more closely with fellow democracies, pursuing interests and values alike.[30] Yoon's 2022 *Strategy for a Free, Peaceful and Prosperous Indo-Pacific Region* (hereafter the *Indo-Pacific Strategy*) commits Korea to "expand regional economic security networks for stable and resilient supply chain management" and to stabilize supply chains for "strategic resources" by cooperating "with partners with whom we share values."[31]

The Yoon administration does, on the other hand, retain strong preference for returning to more *laissez-faire* economic pursuits. In a January 2023 World Economic Forum (WEF) address, Yoon said free trade had "contributed to global economic growth and enhanced humanity's freedom" and called it a "global public good that can never be forsaken."[32] He argued that even as states, Korea included, began to preference commerce with likeminded partners, they should expand their "small bloc to form a larger bloc," by "allowing the free flow of products, capital, knowledge, and information across borders."[33] Similarly, the *Indo-Pacific Strategy* notes Korea will "work with others to prevent the overwhelming dominance of security concerns over economic issues."[34]

Korean Energy Security in Transition

The global energy crisis set off by Russia significantly impacted Korea's short-term energy security and long-term policy landscape. Priorities include the diversification of trade; enhanced stockpiling and energy efficiency; and, most

important of all, accelerated diversification and decarbonization of the national energy mix. A preference for working with likeminded partners spans fossil fuel to emerging clean energy interests. Seoul has also pledged to take a leadership role in Indo-Pacific energy security policy coordination.

Korea's fossil fuel import bill rose almost 60 percent in 2022, even as volumes were largely flat.[35] Korea did not apply international sanctions to Russian energy, but it did voluntarily cut imports. Its consumption of Russian crude oil dropped more than 60 percent and LNG 30 percent in 2022.[36] However, Korean imports of Russian coal increased to 26.5 million metric tons (Mmt), up from 21.9 Mmt, in 2022, and remained high in 2023. In September 2023, however, Seoul asked national power generators to curb purchases of Russian coal from the short-term 'spot' market, which could signal rising resolve.[37]

Korea's pain was, at the same time, likely far less than it could have been. In the intensely integrated oil market, for example, the dynamic rerouting of supplies—helped by India, China, and others maintaining or even increasing their Russian import exposure[38]—has maintained relatively high volumes and low prices. The interaction of markets, technology, and policy also already helped diversify Korea's import partners ahead of the crisis, including towards likeminded partners. Buoyed by its fracking revolution, the United States became a new LNG exporter to Korea in 2016 and was providing 18 percent of its gas by 2021. Australian LNG exports have also exploded since 2016 and now meet 20 percent of Korean demand (second only to Qatar).[39] U.S. oil rose from zero to 12 percent of Korean imports in the same period.[40] Russian exports to Korea, by contrast, were relatively flat in the decade preceding the war, and satisfied five percent of LNG and six percent of oil imports in 2021. The latter was despite Seoul once considering Russia its best bet for shifting oil trade from the Middle East, and co-investing in a series of projects in the country's far east since the 1990s.[41]

Seoul can pull several levers to accelerate partner diversification. The Yoon administration extended freight incentives to Korean oil refiners which purchase non-Middle Eastern oil.[42] Revitalized investment in foreign projects may follow. The Moon administration rescinded its opposition to resource diplomacy in the wake of the Ukraine war.[43] Yoon subsequently pledged to restore public companies' "ability to secure resources and resume normalization of management" and to "help invigorate private entities' investment in overseas resources."[44] The long timeframes involved in developing new fossil fuel projects must, however, be balanced against Seoul's climate targets.

A potentially more significant obstacle to diversification is how prospective partners are themselves responding to ongoing disruption. Australia provides a good case study. It is the largest coal and second-largest LNG supplier to Korea and Yoon's *Indo-Pacific Strategy* notes an intention to increase Australian energy volumes even further.[45] Yet Canberra, and some sub-national Australian governments, have recently placed a raft of new constraints on domestic fossil fuel production, seeking to calm local prices, tax windfall profits, and enhance decarbonization. These policies include price caps, royalty increases, stronger emergency mechanisms for domestic energy reservation, and tighter emission restrictions. Korean—and other Asian—officials are increasingly concerned about the combined effect on near-term trade and also long-term investment attractiveness.[46]

Meanwhile, an unfortunate flipside of globally integrated markets is that, even if it can minimize direct trade with problematic actors and regions, Korea will still experience contagion arising from these sources. Domestic stockpiling can help manage some of the shocks. Yoon's *New Government Energy Policy Direction*, issued shortly after taking office, accordingly increased Korea's strategic oil reserves to over 100 million barrels by 2025, up from 96.5 million barrels, and LNG storage from 13.7 kilolitres (Kl) to 18.4 Kl.[47] The long-term priority must, however, be reducing national dependence on fossil fuels in aggregate.

Minimizing energy usage and diversifying continued demand by energy type are critical. The *New Government Energy Policy Direction* built on existing efficiency commitments. It paved the way for an agreement with 30 high energy-consuming firms to achieve 25 percent efficiency improvements by 2027, aided by incentives such as reduced tax loads. However, making any improvements permanent may prove difficult. Korean businesses have long had strong incentives to reduce their energy usage, yet the country as a whole continues to rank 33rd out of 36 OECD members for energy efficiency.[48]

So long as Korea's preference for energy-intensive development persist, its long-term focus must be on diversifying its energy mix. Many countries have in recent years recognized the significant energy security co-benefits of decarbonization. The IEA notes energy security as a major driver behind renewable capacity additions reaching an expected record 440 gigawatts in 2023—an annual increase of almost a quarter.[49] Yoon's *Indo-Pacific Strategy* seemed to pick up this international thread. It noted the urgent need for "stabilizing energy supply through clean energy transition."[50] This sense of synchronicity might be termed "green security," in an echo of the "green growth" principle Lee popularized after the 2008 financial crisis. Green growth argued decarbonization could accompany economic growth. It was

incorporated into Korea's first climate law, 2010's *Framework Act on Low Carbon Green Growth*, and its successor, 2021's *Framework Act on Carbon Neutrality and Green Growth*.[51]

The Moon administration made particularly significant green security commitments. In a now familiar pattern, it used its own major crisis, Covid-19, to develop the *Green New Deal*, which committed US$61.9 billion to accelerated action across numerous clean energy sectors.[52] The government legislated carbon neutrality by 2050, pledged to phase out coal power by 2050 and achieve a "100 per cent renewables energy future."[53] This was highly ambitious considering renewables currently generate 5.4 percent of Korean electricity—and three percent of total energy—compared to a global average of 12 percent.[54] Moon also set an interim goal for Korea to reduce its emissions 40 per cent from 2018 levels by 2030.[55]

Moon made clean hydrogen a major priority of Korea's decarbonization strategy. Seoul unveiled its *Hydrogen Economy Roadmap* in 2019, with plans to source a third of national energy from hydrogen by 2050 through applications across transport, power generation, and industry. Hydrogen would initially be produced from emissions-abated fossil fuels, but transition to zero carbon sources by 2050. Seoul expects hydrogen consumption to grow from 130,000 tons in 2018 to 5.3 million tons per annum by 2040.[56]

Yoon has retained the Moon administration's 2030 and 2050 emissions reductions goals and many associated commitments, including to hydrogen. The government has significantly departed, however, on the roles of nuclear and renewables. Yoon's *New Government Energy Policy Direction* and *10th Basic Plan for Long-Term Electricity Supply and Demand*, from January 2023, downgraded renewables, which the president has called "too expensive." They favor a revival in nuclear, which the *Indo-Pacific Strategy* called the "most powerful and efficient source of clean energy currently available."[57] Seoul still plans for renewables to provide 30 percent of national electricity generation in 2030, though this is down from Moon's 34 percent. Nuclear's share is expected to reach 32 percent in 2030, up from 26.5 percent—already high compared to a global average 10 percent—in a reversal of Moon's policies for a near total phaseout by 2050.[58]

The Korean Ministry of Trade, Industry and Energy (MOTIE) estimates Yoon's policies will reduce fossil fuel imports from 80 to 60 percent of energy consumption by 2030.[59] Yet Korea has strong path dependency on carbon-intensive development. Even the green growth paradigm has little to show in

terms of emissions reductions. A 2016 study found it had produced no relative or absolute greenhouse gas reductions by that time, and Korean emissions have largely continued rising since that time.[60] Korea's more notable green impact has been manufacturing and exporting, but not necessarily similarly deploying, clean technologies. Korean companies are, for example, emerging EV manufacturing giants (see next section), but EVs currently account for 10 percent of Korean passenger car sales, compared with about 30 percent in China and 24 percent in Europe.[61] Policy support has made Korea the world's largest hydrogen fuel cell vehicle market, though total passenger stock is just 30,000 and sales still represent less than one per cent of the new car market.[62]

Korea's strong regard for economic continuity may even complicate its clean energy choices. National hydrogen and nuclear plans appear at least as motivated by commercial as climate or energy pursuits. The *Hydrogen Economy Roadmap* seeks to generate US$43 billion in economic growth and 420,000 jobs through manufacturing and exporting technologies such as fuel cell vehicles.[63] A 2022 MOTIE nuclear energy plan also set three goals for 2030, one of which was to generate 30 percent of electricity from nuclear sources, while the other two were to export 10 power plants and develop a unique small modular reactor.[64]

Successfully deploying hydrogen and revitalizing nuclear could certainly help reduce Korea's fossil fuels-derived insecurity. But ramping up production to meet 2030, and even 2050, emissions goals, could prove difficult, especially with the corresponding downgrading of renewables. Yoon has cited local challenges with deploying wind and solar compared with elsewhere in the world. But a study from March 2023 found Korea had the necessary assets—including sufficient land not subject to competitive use or geospatial constraints—to generate 5000-terrawatt hours of renewable electricity per year—far larger than existing fossil fuel-based output—and cheaper even than gas on a levelized cost of electricity basis.[65]

Korea also has untapped offshore wind potential. A 2019 IEA assessment noted Korean offshore wind farms could produce more electricity per unit of capacity than conventional gas plants.[66] The Moon administration recognized this potential. In February 2021, it unveiled a 48.5 trillion won (US$43.2 billion at the time) plan to build what would be the world's largest offshore wind farm, off the coast of Sinan.[67] The Yoon administration, by contrast, announced it would reassess this project's economic feasibility upon taking office. Then-Minister for Trade, Industry and Energy Lee Chang-yang eventually cleared it to progress but not before spooking prospective investors in similar projects.[68]

Hydrogen and nuclear will also require significant policy support to effectively displace fossil fuels. Hydrogen's cost and technical challenges compared to direct electrification powered by renewables have, on a global basis, seen clean technology analysts limit its suitability to decarbonizing production of industrial goods such as steel, fertilizers, and chemicals.[69] High costs and long project timeframes for newbuild nuclear projects are an additional challenge.[70] Seoul will also require increased trade in fuel for its expanded ambitions in each sector. It has no domestic uranium reserves and expects to eventually import 82 percent of its hydrogen.[71]

Seoul must ensure its international relationships and multilateral policy settings continue to work in its favor regardless of its future energy mix. To this end, it is already seeking clean energy partnerships with trusted countries. Australia is a major prospective hydrogen supplier and already a significant uranium supplier (alongside fellow advanced democracy Canada).[72] Yoon's *Indo-Pacific Strategy* also commits Korea to strengthening "international cooperation on clean energy…as well as on the development of a hydrogen economy" and to "establish a framework for nuclear energy cooperation in the Indo-Pacific region."[73]

The shape of Korea's energy mix will have a big baring on its future economic profile. A manufacturing-heavy, export-focused development pathway may be impossible to maintain without successful decarbonization, as consumer preferences, and decisions by governments and businesses, increasingly favour cleaner trade.

Korean officials and businesses are struggling to come to terms with policies such as the European Union's Carbon Border Adjustment Mechanism, which is progressively developing tariffs for goods imported from higher emitting jurisdictions.[74] The EU is also negotiating with the U.S. on a steel and aluminium-specific agreement that would levy tariffs on carbon-intensive imports to both markets. While mostly directed at China, this could extend collateral damage to countries including Korea.[75] Korean supply chain partners are also imposing new restrictions. Technology giant Apple—a key partner of chaebol such as Samsung and LG—is, for example, seeking to have only carbon neutral partners by 2030.[76]

The most likely commercial response to a sustained carbon-intensive Korean economy will be the offshoring of energy-intensive activity. Samsung already runs its factories in the U.S. and Europe on entirely clean energy, for example, and has expressed frustration at the difficulties of doing the same at home.[77] Korean steel giant Posco has also indicated it may shift significant energy-intensive production elsewhere if unable to successfully decarbonize domestic production.[78] It is already pursuing a "green iron" plant in Australia, as a precursor to green steel. This will utilize hydrogen produced locally with Australia's more advanced renewables sector, while removing cost and technical barriers to shipping hydrogen.[79]

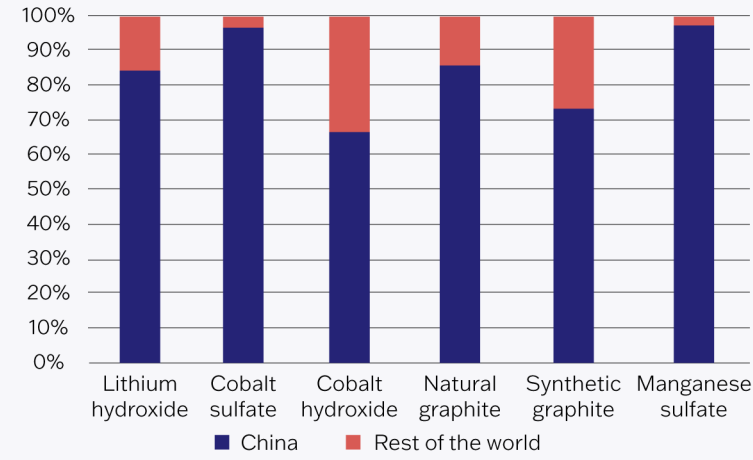
Critical Minerals: The New Resource Security Frontier

Reducing fossil fuel usage would offer significant energy relief, but South Korea will likely always have resource security concerns of some nature. The growing importance of critical minerals to a new, greener, economy is creating particular headaches. Russia's war in Ukraine has again played a big part in exacerbating supply concerns. Russia is a major producer of battery grade nickel and has large reserves of other critical minerals.[80] The energy crisis also accelerated the energy transition and associated minerals demand. It was Covid-19, however, that highlighted the particular vulnerability of supply chains focused on China.

Critical minerals security is vital to Korea's economic future. Divisions of LG, SK, and Samsung have already captured about 26 percent of the global EV battery market, which is second only to China.[81] Korea also has strength and continued ambition in other, non-energy, critical mineral-dependent sectors. It is the world's second-largest semiconductor manufacturer, behind the U.S., and its defense technology industry has grown at a world-leading pace during the past five years.[82]

Korea again depends on imports to meet about 95 percent of its critical minerals demand. The geographic concentration of its trade is even higher than for oil. China provides 80 percent of total processed inputs, and individual mineral percentages are often higher (See Figure 2.)

Figure 2. Chinese share of Korean processed critical minerals (battery value chain)



Source: Author's calculations from Shin (2023).[83]

South Korea is concerned with Beijing's potential to both inadvertently reduce and deliberately weaponize critical minerals supply. China was accused of unofficially banning rare earth exports to Japan following a 2010 dispute over the Senkaku Islands.[84] In July 2023, Beijing introduced global export controls on gallium and germanium in,suspected retaliation against U.S.-led restrictions on Chinese access to semiconductor technology.[85] In October of the same year, China announced restrictions on exports of several graphite products, which are key to electric vehicle battery manufacturing.[86] Korea has itself already suffered under weaponized Chinese trade. Beginning in 2016, China blocked imports of a range of Korean goods and services in response to Seoul's deployment of the U.S.-developed Terminal High Altitude Area Defense weapons system.[87]

The Yoon administration has an overarching critical minerals goal of reducing dependence on Chinese imports to 50 percent of demand by 2030.[88] This is essentially a "derisking, not decoupling" approach.[89] Yet it still remains highly ambitious. China has developed its intense stranglehold through policies implemented over more than a decade.[90] The most notable effort of any country to reduce dependence on Chinese minerals involves Japan's rare earths policies. Yet these have only succeeded in reducing Japanese reliance on China from 91.3 per cent to 58 per cent of demand during the 2008 to 2018 period.[91] Challenges are also arising elsewhere, including intense and nationalistic competition for critical mineral resources and associated value-adding activity.

Critical minerals insecurities are, on the other hand, qualitatively different to those for fossil fuels and more reduceable in the long-term. Shortages of individual minerals for manufacturing will never have as much, or as immediate, an impact as shortages of coal, oil, or gas, which are used in much larger volumes, often directly by consumers. The comparison between a industrially dominant China in critical minerals versus a geologically blessed Middle East in oil shows policy decisions will also be more important than natural capital in determining success. Stockpiling can be a more complicated process than for some fossil fuels, but it remains highly viable.[92] Reducing consumption of problematic materials is also easier without need for large infrastructure shifts, including through developing alternative chemistries for technologies and end-of-life recycling of materials.[93]

Seoul recognizes its interventions can significantly mitigate future critical minerals insecurity. This process necessarily starts with identifying those minerals most important to future economic and strategic priorities. In February 2023, MOTIE released an updated list of 33 minerals eligible for policy support, with 10 of these, including five rare earth elements, receiving greater prioritization (see Table 1).

Table 1. Korea's critical minerals list (MOTIE, 2023)[94]

Priority critial materials
Lithium, Nickel, Cobalt, Manganese, Graphite
Rare earth elements: Lanthanum, Cerium, Neodymium, Terbium, Dysprosium
Critial minerals
Niobium, Copper, Aluminum, Silicon, Magnesium, Molybdenum, Vanadium, Tin, Titanium, Tungsten, Antimony, Bismuth, Chromium, Lead, Zinc, Gallium, Indium, Tantalum, Zirconium, Strontium, Selenium
Platinum group elements: Platinum, Palladium

The ideal end result of critical minerals policy would be creation of well-functioning and transparent markets that can trigger timely investments, efficient trade, and improved oversight over often poor environmental, social and governance (ESG) outcomes. Yet Seoul's more immediate priorities under Yoon have included refining an early warning system for supply chain risks established by Moon. The government is also expanding existing stockpiles from 54 days to 100-days of demand. It has additionally committed to create an EV and battery recycling industry through demonstration facilities, industry clusters, and legislative frameworks. This aims to increase recycling rates from two to 20 percent.[95]

Successful expansion and diversification of critical minerals supply chains is the larger challenge. The imperative to do so has been another factor in Korea's revived resource diplomacy. An important step forward was the August 2021 creation of the Korea Mine Rehabilitation and Mineral Resources Corporation (Komir) from the ashes of several debt-laden agencies. Komir has since provided significant de-risking support for developing overseas projects. In October 2023, most recently, it provided US$3 million to an early-stage Australian lithium exploration project to potentially supply Korea's LG Energy Solution.[96]

The Yoon administration policies outlined in February 2023 improved Komir and other agencies' abilities to issue loans, guarantees, and insurance to Korean companies investing in mines and processing facilities and securing long-term offtake agreements. Seoul has also reinstated an overseas development tax credit axed in 2012, which broadens the scope of deductible expenses on project write-downs and impairments.[97]

The Moon and Yoon administrations have also formed strategic bilateral partnerships with governments in resource-rich countries, including Australia, Canada, Ecuador, Mongolia, Indonesia, the U.S., and Kazakhstan.[98] These have various levels of formality, but they typically seek to leverage and coordinate public and private financing from the partnering country. Seoul has additionally signed up to numerous multilateral policy coordinating bodies. The latest of these is the U.S.-led Minerals Security Partnership (MSP), which Korea joined in 2022. The MSP aims to "help catalyze investment from governments and the private sector for strategic opportunities—across the full value chain—that adhere to the highest environmental, social, and governance standards."[99]

While growing in assertiveness, Seoul's critical minerals policies still place most of the onus for supply chain diversification on private industry. Overseas public investment is mostly limited to de-risking upstream investment, and state support for establishing processing facilities—where diversification is most crucial—is largely domestically focused.[100] National priorities nonetheless vary across critical minerals sectors. Policymakers in Korea and elsewhere are generally eager to attract as much of the battery value chain as possible. Processing rare earth elements, however, involves significant environmental challenges, including handling radioactive materials, which makes offshore activity more attractive.

Developing new projects is a complicated process, so assessing the validity of Korea's approach will take some time. One of the best examples of state-supported critical minerals security does, however, suggest Seoul may need to offer longer-term support with a whole-of-value-chain view. This case saw Japan Australia Rare Earths (JARE)—a joint venture of Japanese trading company Sojitz Corporation and the Japan Organization for Metals and Energy Security—commit US$250 million loan and equity finance to Lynas Rare Earth's Australian mining operations and Malaysian processing operations in 2011, to supply Japan with rare earths following its 2010 China dispute. The partnership remains a valued concern for the parties involved; JARE secured a further US$9 million in Lynas equity in 2022 to facilitate project expansion.[101]

The agnostic partnerships that Seoul and Korean businesses are pursuing may also pose challenges. As noted earlier, Yoon's *Indo-Pacific Strategy* pledged to stabilize supply chains for strategic resources by cooperating with "partners with whom we share values."[102] Yet Seoul has formed government-to-government links with a wide range of disparate states, as outlined above. Korean businesses have operated with similar flexibility. They have, for example, been the largest foreign investors in U.S. battery factories following the 2022 passage of the IRA.[103] Korean firms such as LG and Posco are simultaneously investing heavily in Indonesian value chains.[104]

Partnering widely is in superficial accord with Yoon's defense of depoliticized commerce. Yet Korean investment in the United States and Indonesia in fact results from Washington and Jakarta eschewing free trade and prioritizing domestic interests. Korean manufacturers building batteries in the United States will need to source minerals produced or processed in that country or a U.S. free trade agreement partner to access the full benefits offered by the IRA's Clean Vehicle Tax Credit. Firms operating in Indonesia are heavily motivated by gaining access to Indonesian nickel, which is unavailable on the open market following a ban on unprocessed exports reintroduced in January 2020.[105]

Yoon supported expanding a "small bloc to form a larger bloc" in his 2023 WEF speech, yet the U.S. and Indonesia examples reveal what are currently some severe limitations of this approach. Washington has so far rejected Seoul's requests to extend IRA subsidies to cover Indonesian minerals.[106] Likely U.S. rationales include avoiding any backdoor subsidization of Chinese firms, which are well-represented in Indonesian value chains, or disadvantaging U.S. firms, which must meet higher ESG standards than their Indonesian counterparts.

More importantly perhaps, Korean firms investing in the United States and Indonesia, rather than domestically, reveals the challenges of Korea's own domestically focused industrial policy (as well as some of the contradictions in Yoon's ongoing defense of free trade). Seoul has long offered heavy state support to domestic industry, but its success has typically relied on other economies maintaining open access to material inputs and consumer markets alike.[107]

Seoul already increased support to domestic manufacturers in the wake of the IRA, including increased tax credits and credit lines and reduced interest rates and insurance premiums.[108] These, coupled with other commitments outlined above, may help Korea maintain a secure and competitive industrial ecosystem from raw materials onwards. Policymakers will, however, likely continue to lobby other states to moderate their policies. Other options may eventually also be needed. These include greater policy harmonization with likeminded partners or, more radically, greater tolerance for offshoring Korean industrial activity.

Conclusion: Restoring Order or Embracing Rebalance?

Korea's emergence from poverty was considered a miracle, rather than inevitable. Policymakers thus consider disruption of its resource-intensive, manufacturing-dominated, export-focused basis to be highly threatening. Yet this model has always rested on a fragile bedrock of domestic scarcity and

overdependence on imported energy and minerals. Up until now, Korea has been able to ride out repeated crises without eliminating this fundamental vulnerability. But there is no guarantee that this will remain the case.

Seoul has seemed to manage even the recent period of intersecting crises with relative calm and respect for continuity. There are, however, signs of evolution in national thinking around resource security. In the energy sector, President Yoon has noted the ability to achieve both energy security and energy transition in parallel—what this article calls "green security." While not necessarily reducing the energy intensity of Korea's economy, meaningful decarbonization would be a transformational achievement. It could dramatically decrease the most intense of Korean resource insecurities, concerning fossil fuels.

Turning rhetoric into reality has, however, proven historically difficult for Korea, as the challenges of realizing the earlier national policy paradigm of "green growth" can attest. Some policies, such as Yoon's downgrading of renewables, suggest moderation will remain the focus. There are, on the other hand, signs that the actions of other states might inevitably force reconsideration of the tradeoffs involved with slower decarbonization. Korea's pursuit of more reliable fossil fuel trade with trusted partners might run afoul of these prospective partners' own conflicting policies, as the example of Australia suggests.

Korea is also pursuing a more complicated energy security pathway than many other states. This includes a larger role for hydrogen and, under Yoon, an upgraded role for nuclear at the expense of renewables. This responds to idiosyncratic concerns, but it also increases the pressure on Seoul to succeed. Should it fail, one of the costs may be increased offshoring of energy-intensive manufacturing to greener jurisdictions, as Korean industry have indicated.

Korea's critical minerals goals appear far less complicated by comparison. The overarching focus is to accelerate the development and diversification of supply chains to service Korea's traditional economic priorities. Yet here too, there is a potential need for a more radical reconsideration of Korea's historical resource security bargain. Fierce, nationalistic competition for value-adding activity is a feature of many other countries' efforts to diversify supply chains. Geopolitics, and what might be broadly called "values," including high regard for ESG considerations, are also playing a key role. If Seoul's industrial and foreign policies cannot successfully adapt, this too might force more domestic industry offshore.

Policymakers will likely oppose shifts in the energy and minerals-intensiveness of the Korean economic model. The protection of the essential character of the 'miracle on the Han River' remains at the heart of Korea's economic security pursuits and Yoon's *Indo-Pacific Strategy*. Yet the disruptive forces these are responding to may be difficult to overcome. A somewhat forced rebalancing of the national economy need not necessarily be a negative, however. Successful diversification into new economic sectors is entirely possible. A new equilibrium could also help Korea further minimize fallout from disruptions impacting resources.

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Economic Security and U.S.-China Competition: The View from North Korea

By Rachel Minyoung Lee

Introduction: Economic Security and U.S.-China Competition: The View from North Korea

"Economic security" has become something of a buzz phrase since the Trump administration first incorporated it into the 2017 National Security Strategy, later reintroduced by then White House trade adviser Peter Navarro in this famous line: "Economic security is national security."[1] The line between security and economic issues has become even blurrier in recent years: economic security, though almost never called by that name by the Biden administration, continues to dominate its national security agenda amid intensifying U.S.-China competition, rising geopolitical uncertainties, and challenges to global norms of innovation and trade. Disruptions to supply chains during the global pandemic and in the wake of Russia's invasion of Ukraine have underscored vulnerabilities in the global economy and their potential for security risks.

The dilemmas and opportunities that multidimensional U.S.-China strategic competition poses to key players in matters related to global economic security, namely Japan, South Korea, Taiwan, and the European Union, are well chronicled. One country is conspicuously missing from existing literature concerning economic security or U.S.-China strategic competition and relevant stakeholders' attempts to adjust to the reshaping of the geopolitical and geoeconomic global order: North Korea. North Korea is an interesting piece of the puzzle because it is certainly not a key player in the regional or global economy. It is not part of the global market system. Quite unlike its neighboring states, North Korea's place in global supply chains is minimal at best. Yet, North Korea remains important because it is a major player in the Northeast Asian security landscape. Any key political and economic decisions this nuclear-armed state makes in the region, where major power interests intersect and some of the world's crucial supply chains run, will have profound implications for the security and economy of the world. And Pyongyang's views of U.S.-China

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competition and its economic and political fallout will be a central component of its near- to long-term calculus. Also of relevance is how the North sees the Russia factor in U.S.-China competition and the shifting global order.

Against that backdrop, this paper examines how North Korea perceives economic security and U.S.-China strategic competition; how Pyongyang's views of U.S.-China relations and the changing global order have reshaped its foreign and economic policy; and the opportunities and challenges that U.S.-China competition poses to Pyongyang.

"Economic Security" Narrative in Pyongyang

North Korea does not use the term economic security in a domestic context and has no established definition. Yet, the linkage between the economy and national security features regularly in the country's propaganda, instilling in the people the concept that the two realms are inextricably intertwined. The following line from a prominent first-page article in the country's most authoritative daily, Rodong Sinmun, is one such example:

> Further strengthening the self-supporting foundation of the economy is a fateful matter of importance on which the existence and life-and-death of the state and people rest. That is because today's economic construction is a serious political struggle and class struggle for defending the dignity and sovereignty of the people.[2]

Sometimes, particularly when it needs to justify increased defense spending, North Korea uses the opposite logic—that strong national security ensures economic development:

> We have overcome harsh trials and difficulties and equipped ourselves with powerful national defense capabilities and war deterrent not to threaten other countries but to safeguard the peace and stability of the Korean Peninsula and create a favorable environment for the construction of an economically powerful state by preventing the imperialists' aggression and war and completely ending [their] military threats.[3]

Despite being largely disconnected from the global economy and emphasizing self-reliance day after day, North Korea has shown interest in issues related to economic security and related matters in external contexts, namely, to ridicule South Korea's deepening economic dependence on the United States and criticize its enhanced partnership with Washington and Tokyo, or support Beijing's position on U.S.-China competition. This indicates that the country

understands economic security is a part of the deepening U.S.-China standoff and is concerned about the ramifications of U.S.-China relations for the region and world, including the increasingly clear geopolitical blocs.

Worry Over South Korea's Pivot to the United States and Japan

Though the term economic security had been used widely in other parts of the world for some years, North Korea started mentioning it only at the end of May 2022—in the wake of South Korean President Yoon Suk-yeol and U.S. President Biden's first summit, where they discussed economic security as a main agenda item—and has since regularly reported or commented on related issues.[4] Yoon, a conservative who was elected in March 2022, had promised a foreign policy that was clearly more aligned with the United States than his predecessor Moon Jae-in. Almost all North Korean articles critical of South Korea in connection with economic security have been carried only in the Korean language by the country's external propaganda websites that primarily target South Koreans.[5] The timing of these North Korean articles' appearances, as well as the sources hosting such articles, suggests Pyongyang was concerned about the geopolitical implications of the Yoon administration's pivot to the United States and Japan and was attempting to influence South Koreans' opinion about Yoon's U.S. policy. Furthermore, the increasingly close cooperation among the three nations almost certainly reinforced the North Korean leadership's tendency toward realignment with China and Russia, which was already in full swing.

In the wake of a Japan-South Korea-U.S. summit in November 2022, North Korea criticized the expanding three-way partnership's potential implications for Pyongyang:

> The objective of traitor Yoon Suk-yeol's actively taking part in the U.S.-led "economic security dialogue" lies in using its "economic alliance" with the United States and Japan as the link to achieving "military security" and attempting to intensify the anti-Republic confrontation dynamic based on U.S. "extended deterrence" and Japan's "military assistance."[6]

Following Yoon's visit to the United States in April 2023, North Korea stepped up its criticism of Japan-South Korea-U.S. relations, specifically mentioning the likelihood of their increasing tensions with China and Russia. It cited South Korea's left-of-center daily Hankyoreh, which tends to support engagement with North Korea, as saying:

> … the most fatal part of the recent talks is that the Yoon Suk-yeol "government" has been incorporated into three-way cooperation or a quasi-alliance among the United States, South Korea, and Japan ….
>
> Not content with his one-sidedly hardline "policy toward the North," Yoon Suk-yeol is provoking China and Russia and stoking uncertainties by putting forward his so-called "values-based diplomacy," which is said to be aligned with the United States.…[7]

The string of articles and commentaries deriding Seoul's increased economic cooperation with the United States is consistent with Pyongyang's anti-South Korea propaganda. What is notable is that Pyongyang expressed wariness at—usually by introducing foreign commentators' or media's views—the strengthening and broadening of Japan-South Korea-U.S. cooperation and its implications for North Korea's security environment.

Siding with China

North Korean media have covered U.S.-China trade relations since at least early 2017.[8] It was only in August 2022, however, that North Korea started to conduct a closer review of U.S.-China competition in the economic realm and its implications for the geoeconomic order.[9] It should be noted that North Korea used the website of its Foreign Ministry to support China's position on various issues connected with economic security, usually by introducing the Chinese Foreign Ministry's or media's comments or hosting articles written by North Korean "researchers" echoing China's line. These articles discussed U.S. "pressure" on China in the name of "competition"; U.S. moves to exclude China from global supply networks and "hinder" China's economic and technological advancements; and the destabilizing impacts of the deepening geopolitical divide.[10]

The North Korea Foreign Ministry started commenting on a shifting global economic order—usually by promoting BRICS—at the same time that it began to track China and economic security issues, indicating Pyongyang viewed the changing world economic order in connection with U.S.-China competition. A report on a BRICS summit noted:

> He [The Ugandan president] also stressed that the African countries, in the future, should tide over their economic difficulties in cooperation with those countries like China and Russia….

> It is an irresistible trend of the development of history and only a matter of time that the old uni-polarized international economic system dominated by the U.S. and the West collapses and a new multi-polarized international economic system, equal and fair, emerges.[11]

The North Korean Foreign Ministry website's support for China on economic security is consistent with its handling of China since August 2021, when it started to host a regular stream of reports and articles backing China's (and Russia's) views and positions on various international and foreign policy issues.

U.S.-China Competition and North Korea's Foreign Policy

The North Korean Foreign Ministry website's sudden rush of support for China in August 2021 did not come about in a vacuum: it reflected North Korea's reassessment of the changing global order and its relations with China and the United States, and later Russia. In the backdrop of this foreign policy review was what Pyongyang perceived to be the Biden administration's—and successive U.S. administrations'—continuation of "hostile policy" despite the joint statement from the first U.S.-North Korea summit in Singapore, which pledged to improve relations and work toward denuclearization.[12] This appears to have generated serious skepticism within the North Korean leadership circle about the fundamentals of the country's three-decade policy of nonalignment with China and Russia and, as a buffer against these two great-power neighbors, the eventual normalization of political and economic relations with the United States by working toward denuclearization.

Welcome to a "Multipolar World"

Multipolarization and a "new Cold War" are not new concepts in North Korea: they have been regular themes in state media since the mid-2000s. However, it was not until September 2021, in the wake of the North Korean Foreign Ministry's support of China and Russia, that changes in the global order seem to have started figuring into North Korea's policy thinking. Kim, in his policy speech to the parliament, the Supreme People's Assembly (SPA), for the first time characterized the global order as a new Cold War. He said:

> … the current international situation is mainly characterized by the fact that it has got more complicated as the structure of the international relations has been reduced to the structure of "neo-Cold War" due to the U.S. unilateral and prejudiced bloc-forming style external policy.[13]

It was almost certainly not by chance that in this same speech, Kim criticized the Biden administration's North Korea policy in public for the first time. He claimed that the "new administration" had employed "more cunning ways and methods" in "posing military threats and pursuing hostile policy toward the DPRK" and called for more thoroughly analyzing the "present U.S. administration's" policy on North Korea.

In a speech to the SPA in September 2022, Kim went beyond criticizing the United States for a "new-Cold War" global order and for the first time made public his assessment that a U.S.-led "unipolar" world was transitioning to a "multipolar world":

> The present international situation shows that the contradictions between justice and injustice and between the progressive and the reactionary, especially the power structure surrounding the Korean peninsula, have become obvious and the change from a unipolar world advocated by the US into a multipolar world is being accelerated significantly.[14]

Kim's assertion that the shift in the global order was being "accelerated significantly" likely was triggered by a China-Russia joint statement in early February 2022 declaring "no limits" in friendship, and Russia's invasion of Ukraine later that month.[15] North Korea has had a tendency to view China and Russia together forming one anti-U.S. "pole" in a multipolar or bipolar world.[16] In that vein, the developments of February 2022 could have convinced the North Korean leadership that the China-Russia partnership may effectively counterbalance the United States and the West, U.S. leadership on the world stage would be significantly weakened, and therefore North Korea had been right in its decision to realign with China and Russia.

Recalibrating Policy on Washington and Beijing… And Russia

The takeaway for Kim Jong-un from his three meetings with Trump appeared to be twofold: that North Korea was in for a "long-term confrontation" with the United States, and it needed to be prepared accordingly. "Long-term confrontation" has been a constant theme in Kim's public remarks since he first introduced it in his policy speech to the SPA in April 2019, one month after the collapse of the Hanoi summit.[17] Such thinking was reaffirmed during a North Korean Party Political Bureau meeting in January 2022:

> Assessing that the hostile policy and military threat by the U.S. have reached a danger line that can not be overlooked any more despite our sincere efforts for maintaining the general tide for relaxation of tension in the Korean peninsula since the DPRK-U.S. summit in Singapore, the Political Bureau of the Party Central Committee unanimously recognized that we should make more thorough preparation for a long-term confrontation with the U.S. imperialism.[18]

Though its stance on the United States hardened after the collapse of the Hanoi summit, Pyongyang had not quite ruled out denuclearization from its public narrative. There were signals, however, that a major U.S. policy reorientation was under way: the North Korean Foreign Ministry website's support for China and Russia in August 2021; Kim's public recognition of a changing global order and public denunciation of the Biden administration's North Korea policy in September 2021; the Party Politburo's hint at lifting its self-imposed moratorium on longer-range missile and nuclear tests in January 2022; and in Mach 2022, the North's resumption of intercontinental ballistic missile (ICBM) testing.

These signs of a policy change were confirmed in September 2022, when Kim in his speech to the SPA implied Pyongyang in effect had shifted away from its three-decade policy of normalizing relations with the United States by working toward denuclearization.[19] He said:

> There will never be such a thing as our abandonment of the nuclear weapons or denuclearization first, nor will there be any negotiations to this end or bargaining chip in these processes…. We have drawn the line of no retreat regarding our nuclear weapons so that there will be no longer any bargaining over them.[20]

If Kim's September 2022 speech was not clear enough on North Korea's U.S. policy, he put the nail in the coffin in his speech to the SPA in September 2023:

> As long as our Republic exists as a socialist state and as long as the tyrannical nuclear weapons of the imperialists trying to stamp out independence and socialism exist on the earth, we must neither change nor concede the present position of our country as a nuclear weapons state, but, on the contrary, continue to further strengthen the nuclear force. This is the serious strategic judgment made by our Party and government.[21]

This was a considerable change from Kim's last public reference to denuclearization at the end of 2019, when he said denuclearization was impossible "if the US persists in its policy hostile towards the DPRK," thereby leaving the door open for denuclearization talks, however little.[22]

North Korea's changing calculus vis-a-vis China appears to have shaped, or at least provided impetus to, its recalibration of U.S. policy. Xi Jinping's visit to Pyongyang in June 2019 seems to have marked a watershed in North Korea's thinking on China. The event was notable for North Korean media's unusual emphasis of the socialist bond between the two countries, a theme that would become a recurring point of emphasis in the country's messaging toward China.[23] North Korea's support for China increased significantly after Xi's visit to Pyongyang, most notably the Foreign Ministry's unusual public backing of China on Hong Kong in August 2019 and the Party's rare statement implicitly endorsing China on Taiwan in June 2020, both thorny issues on which the North had previously refrained from commenting.[24] These moves culminated in the North Korean Foreign Ministry's shift to a pro-China stance in August 2021.

Kim's summit with Putin in April 2019 provided good fodder for leadership propaganda at home, but it did not achieve much in advancing bilateral relations in any substantial way. North Korea's pivot to Russia in August 2021—at the same time that the Foreign Ministry website started to carry articles and commentaries supporting both China and Russia—suggested it occurred as part of Pyongyang's broader foreign policy change to realignment with China and Russia. North Korea's support for Russia became more frequent and pronounced after Russia's invasion of Ukraine, as evidenced by North Korea's implicit support for Russia in the wake of the invasion, and subsequently its official recognition of the two Ukrainian breakaway provinces.[25] Kim Jong-un's letter to his Russian counterpart in June 2022 mentioned "strategic and tactical cooperation," a term that typically had been reserved for North Korea's relations with China, in effect raising North Korea-Russia relations to new heights.[26]

North Korea's Changing Worldview and Implications for Economic Policy

There appears to be a strong correlation between North Korea's pursuit of diplomacy and a desire for its version of economic reform, in short, adopting some elements of the market economy within the confines of its planned economy, such as prioritizing material incentives to workers and devolving greater management responsibilities to individual economic units, in short decentralization. This connection between foreign and economic policy was evident in North Korea's efforts to improve diplomatic ties with the United States, South Korea, and Europe in the lead-up to Kim Jong-il's launch of economic reforms in July 2002, and with China, South Korea, and the United States in early 2018, as it transitioned from byungjin, or a policy of parallel development of the economy and nuclear forces, to a policy of fully concentrating on the economy.[27] Pyongyang has historically believed that a favorable external

environment, mainly a reference to an improved relationship with Washington, was necessary for economic development. That was a key driver of its policy of normalizing relations with the United States. It stands to reason, then, that North Korea's changing worldview and apparent fundamental shift in foreign policy have had major implications for the country's economic policy.

The China Opportunity

North Korea's move toward greater centralization of the economy, hinted at during the Party plenary meeting in December 2019 and cemented at the Eighth Party Congress in January 2021, is consistent with the country's shift to conservative policies across all sectors since the collapse of the Hanoi summit, including in the foreign policy realm. It has not altogether reversed Kim Jong-un's economic reform policy: the country's media continue to mention "economic management methods," a code word for his economic reform initiatives.[28] North Korea, however, appears to have slowed down on such measures, reflective of its efforts to reinforce central control over the economy. North Korean media since early 2022 have de-emphasized Kim's hallmark agricultural and industrial reform initiatives. We should recall that January 2022 also marked a key milestone in North Korea's U.S. policy: it hinted at lifting the moratorium on longer-range missile and nuclear testing, after signaling for some months that a broader shift in foreign policy was under way. In March, it resumed ICBM launches. In between, the Chinese and Russian leaders adopted their "no limits in friendship" statement, and Russia invaded Ukraine.

North Korea's downplaying of economic reform measures since early 2022 further underscored the correlation between North Korea's foreign and economic policy, and it suggests that North Korea's weakened will to reform the economy was due at least in part to the space created by its improved relations with China and the rift in U.S.-Sino relations. China's vetoes of additional UN Security Council sanctions against North Korea since its resumption of ICBM test-launches in 2022 have been widely reported. Furthermore, China has repeatedly failed to enforce, and even hampered the monitoring of, international sanctions against North Korea since 2018, owing to its improved relations with Pyongyang and deteriorating relations with the United States.[29]

These are the immediate and obvious gains from the space offered by Beijing, when Pyongyang has no intention of improving ties with Washington, at least not for the foreseeable future. The more important questions are Pyongyang's intentions toward economic development and, if its ultimate goal is to give impetus to economic reform again at some point and fundamentally improve its economy, how it intends to create an external environment conducive to reform.

It appears unlikely that Kim Jong-un will completely abandon economic reform. He reportedly presented broad guidelines on economic reform at the end of 2011, presumably as soon as he ascended to power following his father's death, which shows that economic improvement was a top priority for Kim then and may again become one someday.[30] In fact, North Korea has a history of going back and forth between reformist and conservative economic policies, as exemplified by Kim Jong-il's launch of economic reform measures in 2002 and their reversal starting in the mid-2000s.[31] If Pyongyang's plan is to resume economic reform at some point, it will seek to build a favorable external environment either by improving ties with the United States, or by relying on China, its long-time economic benefactor. Given the changes in North Korea's foreign policy, the China option appears more likely.

Though with less frequency and at lower levels, North Korea continues to refer to reform despite its apparent reversal of policy on normalizing relations with the United States through denuclearization. This suggests Pyongyang thinks it can make reform work without U.S. cooperation, possibly a modified version of what Kim originally intended, and may view China as the viable stand-in. Despite failed past China-North Korea economic projects, such as the Sinuiju Special Administrative Region, Pyongyang has continued to turn to China for investment.[32] For example, North Korea reportedly attempted to attract Chinese investment in the Kaesong Industrial Complex, an inter-Korean economic project vacated by South Korea.[33] Irrespective of which economic policy scenario Pyongyang chooses, it needs a lifeline from China.

De-Risking from China: Paradox of "Self-Reliance" with Reliance

Although Kim's emphasis of "self-reliance" in his policy statement in April 2019 was understood to be a reaction to his failed summit with the United States, the North has also used this theme to reduce dependence on China.[34] The UN Panel of Experts assessed that North Korea's trade with China accounted for approximately 96 percent of its total trade volume in just the first three quarters of 2022.[35] It is no wonder, then, that Pyongyang is wary of over-dependence on China, particularly given its complex history with its great power neighbor.

The country's three-plus years of self-imposed lockdown to prevent a COVID outbreak not only helped it to regain central control over the economy, but it also justified the leadership's repeated calls for domestic production and recycling in the name of "self-reliance" and reduction of "dependence on imports."[36] This almost certainly targeted Pyongyang's top trading partner, China. Neither domestic production nor recycling was a new theme in North Korea. North Korea's domestic production and recycling campaign, however,

did not peak until 2021, following North Korea's adoption of a recycling law in April 2020 and Kim's speech to the Eighth Party Congress in January 2021, where he mentioned domestic production, recycling, and reducing dependence on imports.[37] North Korea instituted a border lockdown in early 2020 and it was in the midst of heavy COVID restrictions by 2021. It would be reasonable, therefore, to conclude that the Kim regime used the self-isolation period to maximize, perhaps even test, domestic resilience and minimize dependence on China.

North Korea's "self-reliance" campaign climaxed at the year-end Party plenum in 2022, when it condemned the "outdated idea of trying to bargain the principle of self-reliance, not abandoning dependence on the technology of others."[38] This stigma of "depending on the technology of others" essentially reversed Kim's previous position that introducing foreign technology was acceptable.[39] This Party plenum was followed by a spate of North Korean media articles warning against assistance from the outside, which theoretically could include China.[40]

Despite this official line, an article in North Korea's leading economic journal, Journal of Kim Il Sung University (Economics), explained the importance of technology trade and importing foreign technology for economic development. It said:

> It is difficult, however, for every country and every individual enterprise to develop and advance on their own all the science and technology necessary for their own development. That is because scientific and technological research is becoming more advanced and comprehensive and the cost of developing new technologies is increasing by the day. For this reason, many countries and enterprises are trying to acquire cutting-edge technologies necessary for their own development through the technology trade market….
>
> If [we] actively increase the proportion of technology trade in the country's trade structure, [we] can introduce, in a timely manner, cutting-edge scientific and technological achievements and technical equipment created in other countries and create favorable conditions and environment for economic sectors and production units to smoothly make technological advances.[41]

This article, published three months after the Party plenum, and almost certainly after a vetting process, runs directly counter to the Party directive and shows the dilemma that North Korea faces beneath the veneer of the tough official policy. Kim Jong-un's visit to Russia, apparently driven in part by

economic gains and the acquisition of Russian military technology, is another vivid example of North Korea's dilemma between the ideal of self-reliance, and the reality of exchange and cooperation with other countries.

De-Risking from China: Cozying up to Russia

North Korea has already started taking steps toward China "de-risking," despite all the benefits of its pivot to China. Kim and his associates likely do not view Beijing as a completely trustable partner in the "common cause" of socialism, which was a recurring theme in Kim's messages to Xi until the Armistice Day celebrations in July 2023.[42] China is trying to manage, rather than escalate, its competition with the United States, as evidenced by the Xi-Biden summit on the sidelines of the APEC summit in November 2023.[43] It wishes to be viewed as a responsible global power. The lower-level delegations China sent to North Korea in July and September 2023 to mark the Armistice Day and the state founding day, respectively, likely reflected Beijing's reluctance to go all in on its relations with North Korea, or to be associated with growing military ties between Pyongyang and Moscow.

And so enters Russia. Although North Korea likes to group China and Russia in the same "pole" to counteract the United States when doing so serves its purpose, it knows better than to overlook the complexities of Sino-Russia relations: Pyongyang has had a record of deftly navigating this complicated relationship during the Cold War to maximize its own national interests.[44]

One might argue that North Korea's invitation of Russian Defense Minister Sergei Shoigu to the military parade marking the Armistice Day in July was a message of sorts to Beijing: the Armistice Day has traditionally been an occasion for paying tribute to the Chinese People's Volunteer's Army. Kim's decision to make Russia his first foreign travel destination after the country's reopening of borders also was a testament to his policy priorities.

Consistent with these moves, North Korea at the highest levels has dropped subtle yet significant signs since the Armistice Day anniversary—almost certainly intended to be noticed by both Beijing and Moscow—that it may be rethinking the China factor in its anti-U.S. policy. In North Korea's readout of Kim's meeting with the Chinese delegation in September, there were no longer the typical references to "strategic and tactical cooperation" or a North Korea-China joint response to the international situation.[45] In the meantime, North Korea has consistently used such language in its reports on Russia since Shoigu's

Pyongyang visit.[46] Additionally, Kim's message to Xi on China's state founding anniversary in early October, while recognizing socialism as important for both countries, carefully avoided characterizing it as a common cause, a contrast to the corresponding message in 2022, which explicitly described it as such.[47]

Conclusion

Though North Korea does not discuss "economic security" in domestic contexts by that name or have an established definition of the term, it thoroughly understands that the economy and national security are inseparable. As unconnected as North Korea is to the global economic system, it is therefore essentially untouched by the typical *economic* issues that many major economies are grappling with in relation to economic security. However, it, like other countries, has closely tracked economic security developments and deepening U.S.-China strategic competition for potential political fallout and what opportunities and challenges that may generate.

U.S.-China strategic competition has offered unique opportunities to North Korea. The immediate benefits are obvious. Politically, China has overtly taken sides with North Korea for its missile launches and provided political cover on the UN Security Council against additional sanctions. Economically, China has turned a blind eye to, if not helped, North Korea's widespread sanctions evasions; it is also known to offer considerable economic assistance to the country.[48] More significant, however, is that it has given Pyongyang the bandwidth to consider alternative paths on the foreign policy and economic fronts. Notwithstanding the complex history between North Korea and China and the former's continued efforts to curb the latter's influence, the U.S.-China rift almost certainly facilitated North Korea's decision to shift away from its three-decade policy of nonalignment with China and normalization of relations with the United States through denuclearization. China appears to be a key factor in North Korea's economic policy: whether as temporary life support until it can figure out how to improve the economy without mending ties with the United States, or as the new favorable external environment for some modified form of economic reform. Although its closer ties with Russia will generate some economic benefits for North Korea, for example through weapons exports, they will be short term; without international sanctions relief and improved ties with the United States, any outside funding necessary to ameliorate the North Korean economy over time will almost certainly come from the Chinese and not the Russians, as historical data confirm.[49]

Intensifying U.S.-Sino competition and what North Korea perceived to be weakening U.S. leadership on the world stage and an increasingly fragmented global order incentivized Pyongyang into rekindling of ties with Moscow as well as with Beijing. It is hard to assess whether Russia is a tactical goal or a part of Kim's longer-term, strategic calculus. Notably, however, Kim told the parliament that his decision to codify the nuclear law in the constitution was a "serious strategic judgment" that went beyond "the analysis and study of the current ever-aggravating situation only."[50] It was almost certainly not by chance that these comments were made just weeks after his visit to Russia.

Despite the opportunities presented by the U.S.-China divide, North Korea clearly understands the importance of hedging against external variables that could negatively impact its economic security. These external variables are not limited to North Korea's hostile relations with the United States or uncertainties in the regional security environment. Rather, dependence on outside powers for survival, mainly China, on which North Korea is heavily reliant economically, is a key external risk. The countless North Korean commentaries bashing "the imperialists'" offers of assistance or reliance on outside powers can easily be applied to China, and they probably do in the minds of the North Korean leadership.[51] In that vein, North Korea's daily calls for self-reliance are not merely a reflection of its lack of interest in engaging Washington—they are equally the country's sounds of alarm against dependence on China and its efforts to build economic resilience at home. It is perhaps fit to describe Pyongyang's campaign against imports and for domestic production and recycling in recent years as an attempt at ensuring economic security.

History has taught North Korea that neither China nor Russia can be fully trusted. That eventually led Kim Il-sung to reach out to the United States to be the buffer against its two great-power neighbors 30 years ago, which resulted in the now-defunct 1994 Agreed Framework. As improved relations with Washington are not in Pyongyang's cards for the foreseeable future, the only viable option for filling that void may be self-reliance on both the foreign and economic policy fronts, with some balancing act between Beijing and Moscow—as shown by North Korea's somewhat cooler handling of China and its proportionately warm treatment of Russia since the Armistice Day celebrations. Only time will tell how Kim Jong-un's North Korea navigates regional and international security dynamics, made increasingly perilous and uncertain by ongoing economic security developments and U.S.-China competition.

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