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Nakasone Peace Institute

Economic Security Study Group FY2022 Report

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Economy Security Study Group

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1. Introduction

Amid growing interest in economic security against the backdrop of high-tech friction between the U.S. and China, the Economic Security Promotion Act was enacted on May 11, 2022. The four pillars of the Act are (1) Resilience of supply chains for key products, (2) Cyber security of essential infrastructure, (3) Support for development of cutting-edge critical technologies, and (4) Non-disclosure of selected patents. The Act has been in force since August 2022. The concept of security is characterized by the extension of the military-based concept of “countering threat to the security of the nation and people’s lives” to economic issues such as the security of key commodities (supply chains) and essential infrastructure.

In addition, with the advancement of science and general-purpose technologies such as AI and biotechnology, advanced technologies and their utilization (innovation) have become an important perspective when considering issues of economic security. Therefore, support for their development is stated as one of the pillars of the Act. “Designated critical technologies” in the law are defined as “advanced technologies that, if leaked improperly or are dependent on external parties, could risk impairing the security of the nation and its people.” For the proper treatment of technology outcomes, international transfers of advanced technologies may be subject to restrictive measures in addition to current trade control regulations.

In addition, as the distance between science and technology is shrinking, regulations now cover not only the results of private-sector R&D but also research activities at universities and other public research institutes. Scientific research is advanced by free international research exchange, and it is especially significant to have access to the global research frontier for cutting-edge science and technology. In other words, excessive regulation will hinder the development of a country’s scientific and technological capabilities, so it is important to strike a balance between “offense” to strengthen a country’s competitiveness and “defense” to ensure that economic security is not threatened by technological outflows.

In this study group, members from a variety of disciplines discussed how to “attack” and “defend” this advanced science and technology from the viewpoint of economic security and have examined institutional design and diplomacy. In this section, based on the results of the study from various perspectives by the various study group members, we provide the overall discussion in which the basic ideas are described, followed by a summary of the opinions expressed in the study group as recommendations for universities, businesses, and the government, respectively, as individual discussions. Finally, the report concludes by discussing future measures including foreign policy.

2. General remarks

The development of science and technology is based on open international collaboration, and restrictions on international activities from the standpoint of economic security generally hinder such development. Therefore, the restrictions should be limited, but it is impossible to identify the target areas in advance, including future development, regarding the details of the wide variety of science and technology areas. In addition, international activities may involve collaboration in various management resources such as human resources, funds, intellectual property, etc., and, in addition to companies, universities and other public research institutes may be subject to restrictions.

The content of research at public research institutes such as companies and universities is specialized and diverse and changes dynamically on a daily basis. It is impossible for the government to establish detailed regulations and implement them in a way that allows companies and universities to conduct their activities in accordance with the regulations. Therefore, in the operation of individual specific systems, it is necessary for companies and universities, and others to make voluntary efforts toward economic security. In addition, it is necessary for the government to consider support measures, including the provision of non-binding guidelines and advice and financial incentives, for efforts by universities and companies to address economic security issues.

What specific areas should be considered as “designated critical technologies” (technology that, if improperly leaked or relied upon outside the country, could cause damage to the security of the nation and its people)? What to protect and what to attack depends on the relative competitiveness and industrial competitiveness of Japan in each technological field. For this purpose, it is necessary to analyze the relationship between science and technology and Japan’s relative competitiveness in each layer.

While Japan has strong scientific and technological capabilities in some fields, such as materials engineering, it lags far behind the U.S. and China in other fields, such as computer science. Since software-related technologies such as AI are mainly embodied in human resources, it may be necessary to actively involve Chinese human resources in order for Japan to catch up in AI technology.

Furthermore, for important technologies such as space technology, it is essential to set up control targets and control levels according to the characteristics of the technology, such as the case in which the technology is generally operated with a high degree of certainty, and the main focus is on preventing the leakage of confidentiality of individual items, rather than the leakage of technology.

Although more detailed studies are needed in individual academic and technological fields to implement this concept into the system, it is considered that there should be basically no restrictions on international or research exchange for scientific

research that does not have a specific intended use. However, even at public research institutes such as universities, applied research close to the stage of practical application may be conducted, and it is necessary to consider sensitive technologies such as those with a high possibility of being converted to military use as subjects to be protected. In other words, it is necessary to analyze the position of the technology to be considered in the process from scientific discovery to its realization as an innovation, and to take into account the uncertainty of the process up to its realization.

3. Theories

3-1. Issues related to research activities at universities

As mentioned above, in order to improve Japan's competitiveness relative to other countries in terms of scientific and technological capabilities, there must be a balance between international collaboration and cooperation for access to international cutting-edge technologies, on the one hand, and prevention of the outflow of Japan's own advanced technologies outside the country, on the other. In particular, since the current economic and security policy is premised on the Japan-U.S. alliance and U.S.-China friction, measures are being considered with China in mind. However, China's science and technology, including computer science, has made remarkable progress, and Chinese researchers have become indispensable to Japan's science and technology activities.

Therefore, it is unrealistic to expect foreign researchers, including Chinese nationals, to be barred from universities and other research institutes, and systematic measures are required at each institution. In addition, the current situation is that individual researchers are left to make substantive decisions regarding the recognition of "deemed export" under the current trade control regulations. It would be appropriate to establish a specialized organization to receive information from the government, including think tanks to be established in accordance with the law, and to perform a check and balance function with the research members within the organization.

At present, universities and public research institutes are still taking organizational measures to comply with the current trade control regulations. However, it can be said that they are still in a state of limbo as on-site responses amid the ongoing consideration of a new system. Universities and other research institutes should be actively involved in the government's consideration of the system in order to develop highly feasible initiatives. It is also important to promote the best practices of institutes that have made progress in this area to other organizations.

Furthermore, while the ethical code of conduct for academic research is based on "research integrity" (fairness in research), the issue of economic security requires a

response that also takes into account the security aspect, such as responding to unauthorized access to research information. Therefore, it is necessary to clarify the code of conduct for dealing with economic security issues at each institute with reference to “research security,” a concept that is being increasingly adopted in the United States.

Furthermore, it is important not only to manage foreign researchers in Japan but also to consider subsidies for international research activities, etc., based on the recognition that Japanese researchers should actively expand overseas and help build international networks, which will enhance Japan’s scientific research capabilities and indirectly help ensure economic security. It is important to consider subsidies for international research activities.

3-2. Response from business

In the industrial world, there is a growing concern that various regulations related to economic security will impede free economic activity. It is inevitable that the government and business are at odds to some extent regarding regulations. However, as mentioned above, economic security covers a wide range of issues, and the situation changes dynamically on a daily basis, so it is not possible to achieve zero risk through government regulation. It is important for companies to recognize that economic security risks are an important factor among more general business risks and to take voluntary actions. Industry needs to not only lobby the government for deregulation, but also take a proactive stance in designing a system that reflects the actual situation of the industry by presenting its own voluntary measures.

Japanese companies are generally said to lag behind their Western counterparts in risk management. As the global economic environment changes drastically, the intelligence function regarding domestic and international regulations and market trends is becoming increasingly important. In particular, large companies engaged in global business need to establish specialized risk management departments to systematically analyze and manage risks, including economic security issues. In addition, in order to ensure economic security, it is also important for small and medium-sized enterprises (SMEs) that handle high-tech technologies to take measures. It is necessary to provide guidelines that clarify whether or not measures beyond the current trade control regulations are necessary and to provide necessary support for SMEs with limited management resources to take such measures.

3-3. Government response

What is important for the government to do is first to determine the details of various systems and measures based on the Economic Security Promotion Act and then to steadily

implement them. In doing so, as mentioned in the General Remarks section, it is important to maintain a highly effective balance between “offense” and “defense” with regard to advanced science and technology through dialogue with universities and other research institutes, private companies, and other research and development sites.

The “think tank function,” referred to in Cabinet Office documents, plays an important role in this regard. Although trends and analysis of science and technology are conducted at various public research institutes and private think tanks, it is necessary to organically link various domestic resources to improve and strengthen cross-disciplinary technical intelligence.

Furthermore, it is necessary to evaluate the potential of advanced science and technology that will be realized as practical technology in the distant future, and it is necessary to incorporate an element of future forecasting. In doing so, it is effective to promote not only conventional technology forecasting, which extrapolates the chronological development of technology by vertical segmentation by field, but also future insight (the formation of collective knowledge and strategic planning with the participation of stakeholders such as the government and private companies who are responsible for medium- to long-term policies and corporate strategies).

In the short term, it is considered realistic to provide practical training to current administrative officials to provide them with the perspective to enhance their foresight in such work. In the long term, however, we believe that specialized human resources are needed that transcend the layers of organizational structure, such as international law, the legal system at the national level, the administrative structure, and the underlying organizational level, such as corporations and universities. To this end, it would be appropriate to encourage the creation of networks of experts and personnel exchanges among organizations that transcend the organizational structures of government, universities, and corporations.

Regarding the non-disclosure system of patent applications based on the law, it is necessary to pay attention to coordination with operations in major developed countries regarding the criteria for selecting the targets of preservation of such a system, from the perspective of not discouraging Japanese companies from filing foreign applications. In addition, as a matter for future consideration, it is necessary to clarify the definition of “Japanese domestic invention” as a requirement for the prohibition of foreign applications. Furthermore, as mentioned above, it would be appropriate for the department specializing in economic security issues in a company to conduct an analysis of the foreseeability of the subject matter of the non-public system in the relevant system.

4. Foreign policy

Recent policy developments related to economic security have been greatly influenced by China's rise as a scientific and technological superpower and the U.S. response to this rise. Security issues are inextricably linked to developments in other countries surrounding Japan, and it has become increasingly important for Japan to engage in diplomacy with the U.S., China, European countries, and other foreign institutions.

Although it is considered effective to utilize multiple fora such as the World Trade Organization (WTO) for reaching out to other countries' institutions, regional agreements such as Free Trade Agreements (FTAs) and Economic Partnership Agreements (EPAs) that complement the WTO are becoming increasingly important amid the global division of interests against the backdrop of the U.S.-China confrontation. There is also a movement toward expanding friendships to counter hegemonic powers through issue-oriented dialogue mechanisms rather than treaty-based ones, such as the U.S.-EU Trade and Technology Council (TTC).

In this sense, Japan has made "a Free and Open Asia Pacific" an important foreign policy, and the Indo-Pacific Economic Framework (IPEF) is an important initiative to realize this policy. The IPEF has many areas of overlap with the TTC, and it also aims at flexible policy coordination among countries, rather than hard treaty conclusion.

However, it is difficult to find common merits in the IPEF, since the participating countries are at different stages of economic development and have diverse political systems, such as India and ASEAN countries, in addition to Japan and the United States. A possible approach would be to include content that is beneficial to each country and agree on the contents as a package. However, the current participation is on an issue-by-issue basis (for example, India does not participate in "trade"), and even if an agreement is reached, there is the issue of whether the loose policy coordination will ensure that the agreed contents will be implemented. Therefore, Japan needs to exercise leadership in identifying and reconciling the awareness of the major countries of the issues and in negotiating policies.

The relationship with Europe is also important in the context of the U.S.-China relationship, as seen in the TTC, where Europe and the U.S. are closely linked politically and economically. However, Europe is also at odds with the U.S., as seen in the area of personal data protection in the General Data Protection Regulation (GDPR). Japan has launched the Data Free Flow with Trust (DFFT) concept for the international movement of personal data, and international negotiations are underway, including those with the U.S. and Europe, based on the concept of trust. European countries are developing diplomacy with other countries based on common values that go beyond economic issues such as human rights and the environment. Japan has the background to accept these values and is capable of presenting its unique inclusive values such as trust.

In any case, as the importance of issues related to advanced technology in diplomacy grows, it is necessary to enhance the monitoring function of the policies of foreign countries, etc., and to improve the structure and coordination of the Ministry of Foreign Affairs of Japan and other relevant ministries and agencies in order to strengthen science and technology diplomacy.