

22 On the Efficiency of Patent Examination Process for Economic Growth^(*)

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This research empirically analyses the effects of the reforms of patent examination system and the international cooperation for patent examination on the firms' patenting activities and the efficiency of examination process.

In recent years, the complexity of inventions and the applicants' need for early patent protection have been increasing. We find that these factors increase the necessity for communications between applicants and examiners, and thus extends the examination period. We also find that the accelerated examination system effectively works to accelerate examination process and that the system is used for high-quality inventions. On the other hand, our results suggest that the reduction of the allowable period of examination request makes it difficult for each applicant to assess the value of the application and decreases the average quality of patent. The reform of fee structure functions as an effective policy tool to mitigate such negative effect on the patent quality. Furthermore, this research shows that the use of the search report provided by a foreign patent office significantly enhances the examination efficiency.

I Introduction

The patent system should be designed to contribute to industrial development. In particular, the length of the examination period and the examination quality affect patent prosecution activities and R&D activities of applicants and third parties and also affect the quality of patents. Therefore, it is important to design an efficient examination process to ensure the effective functioning of the patent system.

Despite such importance, sufficient analysis has not been conducted based on objective data in order to check the effects of the system reform related to the examination process and the effects of international cooperation for patent examination. The purpose of this research is to conduct an empirical analysis on the effects of the examination system reform in Japan and the effects of international cooperation for patent examination and to gain insights into how to improve the efficiency of the examination system.

More specifically, in this research, we have conducted an empirical analysis on such specific issues as (1) the chronological and technical field-specific trends in the characteristics of inventions, (2) the deciding factors of examination efficiency, (3) the effects of the reform of the

accelerated examination system and the examination request system, (4) the effects of the revision of the patent-related fee system, and (5) the effects of international cooperation for patent examination.

Issue (1) will be analyzed in order to figure out what the chronological change is and what the technical field-specific distinctiveness is in terms of the complexity of the invention claimed in an application, and the applicants' need for accelerated patent grants, and examination efficiency. Issue (2) will be analyzed in order to identify a situation that would lead to a longer examination period and a higher trial occurrence rate from the perspective of the characteristics (complexity, etc.) of inventions and the applicants' need for accelerated patent grants. Issue (3) will be analyzed with a focus on the system reform, i.e., the relaxation of the requirements for the use of the accelerated examination system and the shortening of the period during which an examination request may be filed, in order to examine the possibility that such changes in the system have lowered the quality of patent applications. Meanwhile, Issue (4) will be analyzed in order to determine whether the patent-related fee system, which is a type of policy tool, has the effect of reversing the patent quality deterioration

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caused by the promotion of accelerated patent grants. Issue (5) will be analyzed in order to examine whether the use of the search results provided by foreign patent offices would enhance the examination efficiency of the JPO.

The major findings of this research may be summarized as follows.

(1) Since 1990, the complexity of the inventions claimed in patent applications has been increasing. At the same time, the need for accelerated patent grants has been growing. The examination quality measured in terms of the registration decision rate and the trial occurrence rate has been improving as well. Due to an increasing backlog, the period between the application filing date and the date of final action has been getting longer, while the communication period (the period from the date of first action to the date of final action) has been getting shorter. This indicates that examination results have become more convincing.

(2) Such an increase in the complexity of inventions would heighten the necessity for communications between applicants and examiners and would also extend the examination period. Furthermore, an increase in the need for accelerated patent grants has the effect of extending the communication period, while it is expected to shorten the period between the application filing date and the examination commencement date. This suggests that such inventions tend to be important for applicants and tend to be subject to prolonged disputes over the reasons for refusal. Moreover, we have found that an increase in the complexity and importance of an invention would result in a higher rate of the occurrence of a trial against an examiner's decision of refusal and in lower examination quality.

(3) The accelerated examination system designed to meet the applicants' need for accelerated patent grants is used for highly important inventions for which a strong need for accelerated patent grant exists. The relaxation of the requirements for the use of the system has greatly contributed to the promotion of the use of the system. In particular, the relaxation of the requirements imposed on foreign applications has increased the use of the system for the purpose of accelerated patent grants in other countries. Furthermore, the relaxation of the requirements has not necessarily deteriorated the quality of patent applications that are filed under the system.

The shortening of the examination request period for the purpose of accelerating patentability judgment has significantly increased

the examination request rate. In particular, this effect is greater in the case of a complex invention or an invention that may be found low in quality based on the number of instances of being cited as a reference in other inventions. This indicates that the shortening of the examination request period has increased the level of unpredictability faced by applicants and lowered the average level of patent quality.

(4) The 2004 revision of the patent-related fees raised the examination request fee and lowered the patent fee, while maintaining the average level of the total amount of payment at the same level. The purpose of this revision is to encourage applicants to make examination requests more selectively and to reduce the burdens for the long-term maintenance of such high quality patents registered selectively. The analysis results have shown that this revision of the fees has not affected ordinary patents, while greatly improving patent quality (the number of instances of being cited as a reference in other inventions) in the fields characterized by a short patent maintenance period. In other words, the revision of the fees has improved the quality of the patents for which examination requests are made. This indicates that the patent-related fee system is an important policy tool to control patent quality.

(5) We have analyzed the inventions claimed in PCT applications filed with the JPO and the EPO and compared inventions for which the JPO's action came before the issuance of the EPO's supplementary search report and the inventions for which the JPO's action came after the issuance of the EPO's supplementary search report. The applicants of the latter inventions have faced a lower trial occurrence rate in Japan and a lower risk of receiving inconsistent examination results from the JPO and the EPO. The results of a regression analysis have shown that the use of a supplementary search report would reduce the rate of the occurrence of a trial against an examiner's decision by 46.3% in terms of the rate of change and would reduce the risk of obtaining inconsistent examination results from the JPO and the EPO by 86% in terms of the rate of change. In short, the use of the search results provided by other countries would significantly improve examination quality.

The analysis results described above have indicated the necessity of enhancing the system in order to fulfill the applicants' increasing need for accelerated patent grants and have also shown the possible benefits thereof. At the same time, the analysis results have also indicated that accelerated

examination could lower examination quality and patent quality and that the negative effects of shortening the examination process could be mitigated by revision of the patent-related fee system and international cooperation for patent examination.

II Related Studies

Today, we do not have a sufficient accumulation of empirical studies on the patent examination process. However, given the worsening of the backlog problem in recent years, researchers have started publicizing relevant studies.

For example, regarding examination efficiency, many studies have been publicized such as a study concluding that the effect of the complexity of inventions is greater than the effect of the characteristics of applicants (Pop et al., 2003), a study concluding that applicants' cooperativeness for patent examination (in terms of the length of the response period, the number of cited prior arts, etc.) varies depending on the level of importance of each invention and that applicants' cooperativeness has a significant effect on examination efficiency (Harhoff and Wagner, 2009; Sampat, 2010; Regibeau and Rockett, 2010), a study concluding that applicants tend to extend the examination process period in order to maintain an opportunity for amendment (Lemley and Sampat, 2010), and a study concluding that applicants tend to delay the filing of an examination request in order to inhibit other companies' activities (Palangkaraya et al., 2008; Henkel and Jell, 2010).

Based on these earlier studies, we have analyzed, in this research, the deciding factors of examination efficiency in consideration of the types of inventions and the applicants' need for accelerated patent grants. We have used the analysis results to determine whether the results of the earlier studies are applicable to the situation in Japan and to identify the effects of the system reform that are unique to Japan.

Some studies have been conducted to analyze the effects of patent-related fee systems on the patent maintenance period and patent prosecution activities (Pakes (1986), Deng (2007), Archontopoulos et al. (2007), de Rassenfosse and van Pottelsberghe (2011)). Many of these studies have shown that patent-related fee systems greatly affect the patent maintenance period and patent quality. This indicates that patent-related fee systems are an important policy tool to control patent quality. In this research, we have

analyzed how patent quality has been affected by the 2004 revision of fees in Japan.

There have been some studies on the international harmonization of patent systems and the inconsistency in examination results (Jensen et al. (2005), Palangkaraya et al. (2005), Webster et al. (2012)). These studies have shown that the inconsistency between countries in terms of examination results tends to occur if the invention has certain characteristics or if the applicant falls under a certain category. International cooperation for patent examination might not only contribute to the shortening of the examination period but also to the elimination of the inconsistency in examination results by improving search efficiency. Since no studies have been conducted from this perspective, we have conducted this research in order to analyze the effects of the use of search reports issued by foreign patent offices on examination efficiency and on the level of consistency in the examination results given by multiple patent offices.

III Brief overview of Data

This research uses, as the variables indicating the need for accelerated patent grants, the ratio of patent applications for which examination requests have been filed simultaneously with the filing of the applications (simultaneous examination request rate), the ratio of patent applications filed under the accelerated examination system (accelerated examination rate), and the period between the application filing date and the examination request date (examination request lag). The simultaneous examination request rate and the accelerated examination rate are on a rising trend in the long run, while the examination request lag is getting shorter. This might indicate the possibility that the ratio of the inventions for which accelerated patent grants are sought has been rising in recent years.

This research uses the registration decision rate and the trial occurrence rate as the indexes of examination quality. The proportion of the number of decisions of registration to the number of final actions has been on the decline. This indicates that examination quality has been enhanced as a result of the adoption of stricter examination standards. The examination quality measured based on the trial occurrence rate also shows a rising trend in the long term. The rate of the occurrence of a trial against an examiner's decision was about 26% as far as the patent applications for which examination requests

were filed in 1999 are concerned, while the ratio dropped to about 10% as far as the patent applications for which examination requests were filed in 2007 are concerned.

The examination speed is an important indicator of examination efficiency. In this research, we differentiate different time phases by calling the period from the date of examination request to the date of final action the "examination period," the period from the examination request to the date of first action the "first action period," and the period from the date of first action to the date of final action the "communication period."

The examination period has been getting longer since the late 1990s due to the extension of the first action period. While the average examination period for the patent applications for which examination requests were filed in 1998 was about 29 months, the corresponding period in 2007 was about 34 months.

The change in the length of the first action period has been linked to the change in the number of examination requests. This indicates that the increasing backlog is the cause of the extension of the first action period. In contrast, the communication period has consistently become shorter. This may be attributable, in part, to the applicants' growing need for accelerated patent grants. Despite the extension of the examination period due to the increasing backlog, the examination results given by individual examiners might have become more convincing.

The examination efficiency is greatly affected not only by the amount of backlog but also by the complexity of inventions. In order to measure the complexity of inventions, we have used as indexes the number of claims, the number of IPCs, the number of inventors, and the use or nonuse of the PCT route.

Since 1990, the number of claims has been constantly on the rise, while the number of IPCs has been on the decline since 1999. The number of inventors and the proportion of PCT applications have been increasing. This indicates that technologies have become increasingly specialized and advanced year after year and that the amount of input necessary to create one invention might have been increasing. Consequently, the difficulty of examination is presumed to have been rising.

IV Determinants of Examination Efficiency

We have examined to what extent examination speed (communication period) and examination quality (trial occurrence rate) vary depending on the characteristics of inventions. For this purpose, we have conducted a regression analysis by using data on patented inventions by controlling the effects of the difference between technical fields and the market trends, technological trends, etc.

First, as far as the communication period is concerned, the indexes for complexity (the number of claims, the number of IPCs, the number of inventors, the use of the PCT route, the number of cited references) are all positive and significant, indicating that the more complex an invention is, the more the applicant and the examiner need to communicate with each other.

The examination request lag, the need for accelerated patent grants measured by the use or nonuse of the accelerated examination system, and the level of importance of an invention measured by the number of instances of being cited as a reference in other instances have a positive effect on the communication period. In other words, this reflects the fact that, in the case of an invention for which a strong need for accelerated patent grant exists or an invention that is expected to have a great value after a patent grant, the applicant tends to be involved in a long dispute over an examiner's decision of refusal until a decision for patent registration is made.

An examination of the inventions subject to trials has revealed that the more complex or more important an invention is, the higher the rate of the occurrence of a trial against an examiner's decision would be. On the other hand, as far as invalidation trials are concerned, the indexes for complexity do not have any clear effect. This is probably attributable to two contradicting effects, namely, the effect of decreasing the rate of the occurrence of invalidation trials as a result of the fact that the more complex an invention is, the more difficult it would become for third parties to determine whether the patent should be invalidated or not, and the effect of increasing the rate of the occurrence of invalidation trials as a result of the fact that the more important and complex an invention is, the greater effect it would have on third parties' business activities.

V Determinants of the Use of the Accelerated Examination System and the Effect of the Relaxation of the Requirements

The accelerated examination system was established to satisfy the applicants' need for accelerated patent grants by giving higher examination priority to the applications for registration of inventions that satisfy certain requirements (as far as applications for which examination requests were filed in 2007 are concerned, the period between the date of examination request and the date of first action is 6.5 months in the case of a patent application processed under the accelerated examination system, which is much shorter than 29.5 months in the case of a patent application processed under the regular examination system.)

In this section, we have conducted a regression analysis on patented inventions and, after removing the effects of the difference between technical fields and the effects of the market trends and technological trends at different times, examined what types of inventions have been subject to the accelerated examination system and how such types of inventions have been changed by the relaxation of the requirements.

Since the patent data does not distinguish small and medium-sized companies from other companies, this analysis has examined the effect of adding the requirement to the effect that an invention must have been filed with a foreign patent office ("overseas filing requirement") (January 1996) and the relaxation of the requirement (July 2004). The introduction of the overseas filing requirement has the following two purposes. The first purpose is to provide a screening function for important inventions. Since an invention for which a patent application is filed in a foreign country is likely to be important in Japan as well, it would be beneficial to accelerate a patent grant. The second purpose is to allow foreign patents offices to use the JPO's examination results in order to promote accelerated patent grants in other countries. This function has been provided by the Patent Prosecution Highway (PPH) as well.

In particular, in the case of a patent for which an application is filed with a foreign patent office based on a Japanese application, the latter purpose is relatively more important than the former. In this case, since an applicant needs to obtain examination results from the JPO before the commencement of examination by a foreign

patent office, the applicant tends to file a request for accelerated examination as soon as possible after the filing of a patent application. On the other hand, in the case of a patent for which an application is filed with the JPO based on a foreign application, it is relatively more common to use the accelerated examination system simply for the purpose of accelerating a patent grant in Japan.

We have conducted an analysis on samples for different phases defined by whether it is before or after the introduction of the overseas filing requirement and before or after the relaxation of the requirement and have found that both the indexes indicating the level of importance of an invention and the applicants' need for accelerated patent grants have a positive effect on the accelerated examination rate. This indicates that the accelerated examination system is used for important inventions for which a strong need for accelerated patent grants exists.

Furthermore, we have found that, after the introduction of the requirement and after the relaxation of the requirement, the coefficient of PCT applications increased from the level prior to the introduction of the overseas filing requirement. This indicates that the use of the system was promoted by the relaxation of the requirement.

We have also found that the accelerated examination rate is higher in the case of an invention for which a patent application is filed in a foreign country by claiming priority right based on a patent application filed in Japan than in the case of an invention for which a patent application is filed in Japan based on a foreign application. This suggests that applicants are using the system in order to obtain examination results in Japan at the earliest date so that they can receive patent protection in other countries as soon as possible.

Regarding the indexes concerning the use of the accelerated examination system, since the coefficients of the number of IPCs and the number of instances of being cited as a reference in other inventions have been on the rise since the relaxation of the requirement, it can be said that the relaxation of the requirement has not necessarily deteriorated the quality of patent applications processed under the system.

VI Effect of the Shortening of the Examination Request Period

The examination request period is considered to have the effect of inhibiting the patent registration of unnecessary inventions by giving

each applicant who has filed a patent application a certain period of time to carefully determine the necessity of the patent registration of the invention. This would allow both applicants and the JPO to reduce the social costs related to patent examination not only in the sense of examination costs but also in the sense of the examination period, etc.

On the other hand, if a patent application is pending without being subject to patent examination, there would be such an adverse effect that other companies would not be able to conduct R&D activities freely for fear of infringing other companies' patents. This means that a company could use the examination request system for such an opportunistic purpose as imposing restrictions on other companies' activities by filing a patent application for an invention that has little patentability and choosing not to file an examination request.

The shortening of the examination request period enforced in 2001 is considered to be a solution for eliminating such an adverse effect. However, there is a possibility that the shortening of the period during which each applicant is expected to carefully determine the necessity for patent registration has promoted the patent registration of inventions that should not be registered in the first place.

The purpose of this analysis is to examine such possibility. We have examined the hypothesis that the increase in the examination request rate caused by the shortening of the examination request period is greater in the case of a complex invention that inherently gives the applicant difficulty in determining the necessity for patent registration than in the case of an invention that is found to be low in quality based on the number of instances of being cited as a reference in other inventions.

A regression analysis on patented inventions has revealed that the shortening of the examination request period would have the effect of increasing the examination request rate by about 10.6% on average and that the effect would be strengthened by the complexity of an invention (a large number of claims, the filing of PCT applications).

The analysis has also revealed that the lower the patent quality measured based on the number of instances of being cited as a reference in other inventions is, the stronger the effect of increasing the examination request rate would be. This suggests that the change in the system has lowered the average level of patent quality.

In other words, the shortening of the examination request period has increased the unpredictability faced by applicants and decreased the average level of patent quality.

Therefore, unless accelerated patent grants promote R&D and innovation activities to such an extent that the abovementioned adverse effects become negligible, the social conditions and public welfare would deteriorate.

VII Effect of the Revision of the Fee Structure on Patent Quality

The patent-related fees, i.e. application fee, examination request fee, and patent fee, have been established based on the principle of equivalence (the fees should be set at a level that is sufficient to compensate administrative costs) and the principle of beneficiary liability (the person who benefits from administrative service should be liable to pay the costs as compensation). The application fee is set at a level that is considered appropriate from the perspective of promoting inventions. The examination request fee is set at a level that is considered appropriate from the perspective of maintaining a proper level of examination request activities. In consideration of these fees, the patent fee is set at a level that is considered appropriate from the perspective of compensating all of the administrative costs.

In short, the patent-related fee system is expected to set fees at a level that is sufficient to compensate administrative costs and to perform the function of promoting applicants' R&D activities and the applicants' function of screening inventions. Since the application fee is not so expensive, the latter function, i.e., the function of controlling patent quality, may be considered to be more important.

In this section, we have identified the effects of the revision of fees on the number of times that patent applications have been cited as a reference and confirmed the importance of the revision of fees as a policy tool to control patent quality.

Based on the results of a regression analysis conducted on patented inventions after removing not only the effect of the difference between technical fields and the change in the market trends and the demand trends but also the effect of the shortening of the examination request period and the difference in the need for accelerated patent grants, we have found that the 2004 revision of fees had little effect on the average number of instances of being cited as a reference in other inventions and, in contrast,

that the number of instances of being cited as a reference in other inventions has greatly increased since the revision of fees in the fields where the maintenance period is relatively short.

This indicates that the revision of fees has the effect of improving the quality of patent applications for which examination requests are made, while maintaining the average amount of total payments at the same level and adjusting the amount of payment in accordance with the length of the maintenance period. In other words, the patent-related fee system is a very effective policy tool to control patent quality.

VIII Effect of International Cooperation for Patent Examination

Currently, in order to enhance the efficiency of patent examination, the JPO has been promoting mutual sharing of examination results with foreign patent offices. The purpose of this analysis is to determine the significance of the actual effect of such sharing and to evaluate what effects the use of other countries' search reports would have on domestic examination efficiency.

Since we are unable to obtain data that clearly shows whether examiners have used other countries' search reports or not, we assumed that if domestic examination results are given after the publication of the results of a search conducted by another country, the examiner who engaged in the domestic examination has referred to the search results of that country. Similarly, we assumed that if domestic examination results are given before the publication of the results of a search conducted by another country, the examiner who engaged in the domestic examination has not referred to the search results of that country.

In the case of an invention claimed in a PCT application filed with the EPO, if the EPO is not an International Searching Authority, the EPO will issue a supplementary search report. In this section, regarding the inventions for which PCT applications were filed with the EPO by using the JPO as the Office of First Filing, we have made a comparison between the following two types of inventions from the perspective of the trial occurrence rate and the ratio of consistency in examination results; the inventions for which the JPO has given examination results prior to the issuance of the EPO's supplementary search report and the inventions for which the JPO has given examination results after the issuance of the EPO's supplementary search report.

If it is correct to understand that the use of the

EPO's supplementary search report improves examination quality, we should be seeing a lower trial occurrence rate and a higher ratio of consistency between the two countries in terms of examination results in the case of the inventions patented based on a supplementary search report than in the case of the inventions patented without using a supplementary search report.

In this analysis, it is necessary to remove the effects of the endogeneity that may be summarized as that, in the case of highly patentable, important inventions, applicants tend to receive examination results within a relatively short period of time and suffer a relatively high rate of the occurrence of a trial against an examiner's decision as well as the endogeneity that may be summarized as that the shorter the examination period is, the lower the examination quality would be. In this analysis, we have conducted a two-stage estimation by using the search commencement lag at the EPO as an instrumental variable.

The analysis results have shown that the use of the EPO's supplementary search report reduced the rate of the occurrence of a trial against an examiner's decision to 5.9% (the rate of change is 46.3%), which is a 5.2 % decrease from the average level of 11.1%, and also reduced the ratio of inconsistency between the JPO and the EPO in terms of examination results to 6% (the rate of change is 86%), which is a 36 % decrease from the average level of 42%. This indicates that the use of other countries' search results greatly affects examination quality.

IX Conclusion and Political Implications

In this research, we have conducted an empirical analysis to figure out what effects the system reform related to the patent examination process in Japan and international cooperation for patent examination would have on applicants' patent prosecution activities and examination efficiency.

In recent years, inventions have become increasingly complicated and advanced. Furthermore, the applicants' need for accelerated patent grants has been growing. The analysis results have revealed that the increasingly complex inventions and the growing need for accelerated patent grants have increased the necessity for communications between applicants and examiners and have extended the examination period. Against this background, the accelerated examination system is found to be an important policy tool to facilitate accelerated patent grants. We have also found that the system

is used for high-quality inventions. On the other hand, while the shortening of the examination request period has accelerated patent grants, it could deteriorate patent quality by making it difficult for each applicant to determine the necessity of the invention. The analysis conducted in this research has revealed that the patent-related fee system is effectively functioning as a means to mitigate such patent quality deterioration. Furthermore, this research has shown that the use of the search results of other patent offices could greatly improve examination efficiency.

These findings suggest that the applicants' screening function is important (the function of differentiating the inventions for which accelerated patent grants should be sought from the inventions for which deferred patent grants should be sought) in enhancing examination efficiency and conducting patent examination at each applicant's preferred timing within the limited examination resources (in terms of personnel and budget). This is obvious from the fact that the shortening of the examination request period has greatly deteriorated patent quality.

The accelerated examination system, though it is free of charge, is not necessarily used for all of the inventions that satisfy the requirements, while it is observed that the system is used for high-quality inventions. This indicates that the requirements for the use of the system have been imposed for the purpose of simultaneously achieving the maintenance of patent quality and the fulfillment of the need for accelerated patent grants. However, increasingly complicated and advanced inventions and the applicants' growing need for accelerated patent grants would necessitate further relaxation of the requirements in the future. On the other hand, since the relaxation of the requirements for the use of the accelerated examination system would increase the possibility of the use of the system for inventions that are low in patentability and value, it could deteriorate the average level of patent quality.

Such deterioration in quality could be reversed by the enhancement of the applicants' screening function by revising the patent-related fee system. In fact, the results of the analyses conducted in this research have shown that the patent-related fee system is a very effective tool for patent quality control.

Currently, while discussions are being held on the idea of increasing the number of phases in patent examination, significant relaxation (for example, the removal of the requirements so that any person can use the system) of the requirements for the use of

the accelerated examination would bring about a similar (or more desirable) effect.¹ In this case, it would be necessary to inhibit the filing of requests for accelerated examination to such a level that allows for the proper setting of priority for patent examination by charging a fee for the use of the system so that the system is used only for inventions for which accelerated patent grants are truly needed and by encouraging applicants to provide the screening function. It is also necessary to provide support for small and medium-sized companies, etc., that do not have sufficient financial resources.

Moreover, it would be beneficial to consider lowering the examination request fee if applicants are newly charged for the use of the accelerated examination system and thereby to reduce the burdens on applicants who have to face greater unpredictability caused by the shortening of the examination request period, while maintaining the expected total amount of payment at the same level.

As described above, it would be possible to grant a patent at an appropriate time without lowering patent quality by giving applicants an opportunity for making a decision at two timings, i.e., the time of filing an examination request and the timing of filing a request for accelerated examination. At these two timings, each applicant is expected to determine the necessity for a patent grant and the priority for patent examination. In particular, since no limitations are imposed on the filing of a request for accelerated examination, the system could be used in a flexible manner by choosing an appropriate timing in accordance with the timing requested by the applicant for a patent grant. However, it would have an adverse effect on third parties to keep a patentability judgment on an unpatentable invention pending for a long time. Therefore, it might be necessary to set a limit on the length of the period before the commencement of examination as far as the regular examination system is concerned. Also, it might be beneficial to permit a third party to file a request for accelerated examination in order to reduce the adverse effect caused by a pending patentability judgment (in this respect, this might be more desirable than the idea of increasing the number of phases in patent examination.).

Furthermore, this research has revealed that international cooperation for patent examination is very effective in increasing examination efficiency. It would become increasingly important to promote such activities.

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¹ For example, if the number of cases of the use of the accelerated examination system increases, the examination of a patent application processed without using the system would take longer than the current level as long as other conditions are the same. This means that the nonuse of accelerated examination would have the same effect as the effect of the use of deferred examination. Meanwhile, if the requirements for the use of the system are abolished, it would be more desirable than increasing the number of phases in patent examination in the sense that it would allow a third party to use the accelerated examination system to accelerate patentability judgment on an unpatentable application.