ORIGINAL ARTICLES

FEWER CHILDREN AGED SOCIETY AND INTELLECTUAL PROPERTY RIGHT POLICY

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Abstract: Organization for Economic Cooperation and Development (OECD) expects long-term decline of world economy by aging, and mentions following four basic measures that should be chosen to this economic-crisis prediction in each country:

1. Stabilization of the government-debts by control of expenditure.
2. Elderly people's working.
3. Reduction in unemployment rate.
4. Deregulation.

Since the determination of the fundamental principles for aged society at the cabinet meeting in 1985, the measures to such a fewer children aged society has been advanced in various forms. Especially the measures against social security, and the deregulation and the stabilization of the government-debts by control of expenditure have been considered in Japan already, but the study how Japan will grow in fewer children aged society has not been done. Especially elderly people's working is not considered enough yet.

Then this paper shows following things:

1. Aging makes the increase of tertiary industry.
2. It is indispensable that elderly people play an active part to maintain economic growth in the aged society, and it is necessary to study the way to make elderly people's working that may make a pensioner into a taxpayer in tertiary industry.
3. To perform this purpose, new intellectual property right system that employs elderly people's wisdom efficiently is necessary to be formed.
4. The basic idea for this system is shown as the result of studies about the relation between industrial property policy and industrial promotion.

Key words: Elderly people's working, Intellectual property policy, Fewer children aged society

1. INTRODUCTION


1. The population of Japan will greet a peak with 127,720,000 people in 2006, and will decrease after that.
2. The population of elderly people, 65 or more years old people that are 22,040,000 people now will exceed 30 million people in 2013.
3. The population of 20 to 64 years old people that are 86,380,000 people now will decrease to about 60 percent in 2050.

Since the determination of the fundamental principles for the aged society at the cabinet meeting in 1985, the measures to such a fewer children aged society has been advanced in various forms. Especially the measures against social security have been done, but the study how Japan will grow in fewer children aged society has not been done. And for this sustainable growth, it is necessary to use various resources in Japan. These resources contain not only ultramodern technologies, but also combined mature intelligence of new technologies and Kansei which are based on human experience and intuitive knowledge.

Then the purpose of this paper is to study following things from Kansei engineering:

1. It is indispensable that elderly people play an active part to maintain economic growth in the fewer children aged society.
2. To perform this purpose, new intellectual property right that employs elderly people's wisdom efficiently is necessary to be formed.

2. AGING AND ECONOMIC CONDITION CHANGE

1.1. Long-term Decline of World Economy by Aging

Ignazio Visco [2], the chief economist of the Organization for Economic Cooperation and Development (OECD), performed worldwide model analysis about the influence which aging affects finance and economy, and found out the following five indications in 2000.

1. If the productivity or that of labor force participation rate do not improve continuously, the economic growth rate of OECD will become slow for dozens of years from now on.
2. If there is no suitable policy adjustment, aging will reduce the increasing rate of a living standard (per person GDP). Even when a pension fund is employed for the foreign property that can be expected a high profit, it cannot be expected that living standard goes up.
3. The pension-benefits expenditure by the current disbursement...
approach pension fund of countries of OECD will exceed tax revenues sharply, and produce economic huge deficit. The government-debt to GDP will go up immediately in Japan, and will begin to rise also in Europe and U.S. by 2010.

④ Baby-boom generation will become the time to desire high storage, and a private sector saving ratio will rise temporarily. However, a savings ratio will fall gradually as they pull out their property.

⑤ The large gap of current balance in OECD and other countries are produced by the difference in aging in each country. Besides the research of OECD, there were two main researches on the influence analysis to the world economy by aging. One is the general equilibrium multi-country model analysis by International Monetary Fund (IMF) [3] in 1990. This model analyzes the influence to the economy, finance, and market price of the advanced nation by aging. Another is the comprehensive analysis of EU, U.S., and Japan by the European Commission in 1999. England, Robert Stowe [4] has concluded the slowdown of economic growth by aging and the worldwide increase of the debt as the results of comprehensive study of these simulations, and the aging in the Asian area after 2010, and the appearance new economy hie IT.

OECD mentions following four basic measures that should be chosen to this economic-crisis prediction in each country.

① Stabilization of the government-debts by control of expenditure.
② Elderly people's working.
③ Reduction in unemployment rate.
④ Deregulation.

The deregulation and stabilization of the government-debts by control of expenditure have been considered in Japan already, but elderly people's working is not considered enough yet. Then, it is studied as main subject in this paper that elderly people's working that may make a pensioner into a taxpayer.

2.2. Necessity of Elderly People's Working as Preventive Measures to Economic Decline

According to the above population estimation, elderly people will occupy about 25% of Japanese population in 2015. This change will cause not only quantitative feature, but also qualitative feature of the elderly people. Present 60 years old people who bore before the Second World War will change new 60 years old people who bore all after the Second World War in 2015. They received high education on the ratio of the 3 present times or more of present 60 years-old people, and received advanced work, and have enjoyed the rich life from when they were young.

On the other hand, the 20 years old people population that was 19,130,000 people in 1996 will decrease to 12,480,000 people in 2015. It is said that the ratio of students who goes to higher schools will increase, and a young man's occupation selection will become freer. Moreover, the change of population-composition will make the problem between employers and employees on the burden of the charge of welfare pension insurance, and the problem on a pensionary burden among generations.

The annual income per Japanese laborer is already the highest level in the advanced nations. Therefore, when considering the corporate management that employs future Japanese, it becomes indispensable for the company to produce goods and service with high added value and to change a conventional management system as experience-wage structure.

About elderly people's working, Seike [5] has pointed out the necessity of establishing new employment system that is not related to age till 2015. It is not good environment to employ elderly people now because that young labor force is abundant, and the economy is depressing. But it is expected that this problem turn into an unavoidable social subject with a long-term viewpoint.

3. AGING AND INDUSTRIAL STRUCTURE

3.1. Increase of tertiary industry by aging

In this chapter, the relation between aging and industrial structure are studied. Fig.1 is the scatter diagram of the tertiary industry working ratio (the rate of tertiary industry worker who occupies to the worker of all industries) and the rate of aging defined by United Nations (the rate of 65 or more years-old population occupies to all population)of 40 nations (data of one fiscal year from 89 to 95) [6-8]. It is shown that the tertiary industry-working ratio tends to rise according as rising of the rate of aging.

![Fig.1. Relation between rate of aging and tertiary industry working ratio (40 nations)](image)

United Nations defines the country that rate of aging is less than 7% as "the society that is not aging", and the country that rate of aging is 14% or more as "the aged society". As a result of t-test about the tertiary industry working ratio of "the society which is not aging" (20 nations) and that of "the aged society" (10 nations),
there was a significant difference (3.99E-07).

Fig.2 shows the rate of aging and the tertiary industry ratio (the ratio of tertiary industry workers who occupy to all population) of U.S. from 1900 to 1985 and both of Japan from 1953 to 1999. The correlation coefficient of both in Japan is 0.960 and that in U.S. is 0.942, and it is said that there is tendency that the rising of the rate of aging raises the tertiary industry ratio in both countries.

3.2. Support Service industry floatation as elderly people working

What business in tertiary industry will increase in the aged society is analyzed here.

For a company, the abolition of mandatory retirement induces the wage-problem and the problem that loses the legal basis for employment discontinuation. However, as the result of re-funding cost analysis, most companies implemented dismissal measures instead of reservation measures is increasing for talented employee. And the floatation by middle or advanced age people has been increasing recently.

Seike et al. [9] indicates that floatation by such elderly people should be promoted as an effective employment opportunity for elderly people. In order to propel the floatation by elderly people, they also pointed out that company's contract for special service with elderly people is necessary. In U.S., there are many examples of floatation as a specialist who uses one's experience efficiently already. There is an example that about 100 mental-care specialists of U.S. Life Insurance Company dispatched to the merged subsidiary in Japan. Most of these specialists are not an academic specialist, the middle or advanced age women with past working experience in the merged life insurance company. However, the evaluation to such experience and know-how is still low in Japan. Then, it is required for promotion of floatation by elderly people that elderly people's experience and know-how are instituted as an intellectual property right socially.

4. EFFECTIVENESS OF INTELLECTUAL PROPERTY RIGHTS SYSTEM

4.1. Composition of Intellectual Property Rights

Effectiveness of intellectual property rights system is studied here. Ueyama [10] divided roughly intellectual property rights of Japan into three by the purpose as follows:

① Right about a technical creation thing: industrial property right which are consist of patent right, utility model right, design right, and trademark right, and laws for protection of semiconductor chips, right of a vegetable new kind

② Right about an of-art creation thing: Copyright and neighboring right

③ Right about a operating sign: Copyright in registered trade name, service mark, and unjust competition preventing method relation, trade secrets

Legal maintenance are applied to the above intellectual property rights, but the know-how right is not applied yet.

4.2. Effect of patent system to industrial promotion

Only industrial property right among intellectual property rights specifies "development of industry" as the purpose. It is said that the system of patent is the most effective to industrial promotion among industrial property rights. Then it is analyzed historically whether the protection of patent has the effect to industrial promotion.

4.2.1. The history of patent and industrial promotion

It is said that patents were granted for inventions already in 1443, and the text of the oldest patent law in the world, officially announced as "Inventor Bylaws" was created in 1474 in Venetia. The contents of this law were to grant and protect the exclusive rights for ten years, the technical acquisition period of apprenticeship in those days, to the creator of the technical craft [10]. As the result, it is said that the Renaissance got into stride and many patents were recorded.

It is said that Britain improved the original system of the present patent law first. Britain of the Edward II era (1307-1327) was long behind in industry compared with the European continent. As a means to promote industries, the king gave the letter of patent to the continent engineers whom Britain needed, and this letter of patent guaranteed that their business could be done safely and freely in Britain. However, because of the blame of the Parliament and people in Queen Elizabeth era (1558-1603), James I enacted the patent law, known as "Monopoly Act" in 1624. However, since the following four items were defined in this law, this law is called first full-scale patent law: (1) Requirements for a patentee, (2) Effect of patent right invention, (3) Public benefit, (4) Valid term of a patent right. [11] It is said that many invention of Industrial
Revolution was produced as this result.

However, Industrial Revolution happened in late 1700s.
Therefore, further analysis should be added in order to clarify the relation between the patent system and the industrial promotion.

Muraoka et al. [12] mention that the rapid increase in population after 1730 and the agricultural capitalism made the foundation of Industrial Revolution. They also pointed out following three points as the background of this agricultural capitalism.

① Change of the agricultural technology by introduction of new developed agricultural products as a “clover” which fixes air nitrogen and serves as manure automatically and “turnip” which was used for hibernant feed.

② Outflow of the farmer to whom the life in the rural area became difficult because that clarification of the land-property as enclosing the circumference with a stone wall by the landowner.

③ Fall of grain price caused the increase of large landowner and tenant farmer.

By such agricultural capitalism, the infrastructure for Industrial Revolution like food-supply, material-supply, and the supply of the horse as a means of transportation to various manufacturing industries was established. Moreover, a colonial policy was promoted at this time, and more than half of import amount was occupied by Asia, Africa and America in early the 1770s. And it is said that this trade strategy and patent system had big influence about the cotton industry that is first industrialized in Industrial Revolution.

The productivity of textiles improved in cotton industry in the 1750s by John Kay's technology, and string ran short. Consequently many spinning machinery including the Arkwright hydraulic power-spinning machine patented in 1769 appeared to solve this shortage of string. Furthermore the cotton industry adopted Watt steam engine patented in 1769 instead of hydraulic power energy, and lost location restrictions. And Arkwright’s patent received decree of nullity in 1785, and this machine spread. and the cotton industry was connected to next Industrial Revolution.

4.2.2 U.S. patent policy and industrial promotion

It is said that U.S. government developed new patent strategy and attained economical recovery recently. Then the relation between patent policy and industrial prosperity of U.S. is analyzed here.

When U.S. became independent from England, establishing an independent patent system was one of the big tasks for new country. The constitution of the federation, adopted in 1787, stipulated that “... in order to promote progress of useful technology and sciences... the parliament... shall grant limited exclusive rights for a certain period of time... to inventors”. The Patent Law was then adopted based on these constitutional provisions in 1790.

U.S. patent policy has been changed three times. After the establishment of law, the export of cotton products was the center of industries, and positive patent policy deployment was not performed till Civil War. First turning point was Civil War. President Lincoln, the profit representative of the northern U.S. that aimed at industrial strengthening, adopted new arms positively in the war. And patent rights were promoted after the war and it is called the first pro-patent period of promoting from the post-war until 1929. Edison’s patented invention was carried out at this time, and the electric bulb patent dispute with Japan was produced.

Second turning point was the Great Depression. After the “National industrial reviving method” which included various competition restriction matters in 1935 received unconstitutional judgment by the Supreme Court, President Roosevelt converted the patent policy and employed the anti-trust law powerfully. The anti-trust law had been applied more strictly to patent rights after the Second World War. There were nine patent-related violation types called "nine No and Noes" of the anti-trust law in those days. Illegal price fixing, quantity restrictions, cross license contract, and charge of discriminatory enforcement are included in these violation types. Suzue [13] points out that the court often applied the minimum punishment and the invalidity judgment to the patent claim in order to hold free economy in those days. And it is called the anti-patent period from 1929 to 1985.

Last policy conversion was done by President Reagan. The "Young report", a proposal for strengthening intellectual property rights, was made at 1985 when U.S. economy was weak. This report proposed that U.S. should use the intellectual property rights as the arms of economic strategy and institute the comprehensive measures for operating these arms effectively.

Following measures based on this report were implemented, and the second pro-patent period has started.

① Institution of Federal Prosecution Court for unification of the patent law interpretation which was various at each court.


③ Article 271 of patent law (g) for infringement assessment about imported goods that are produced by the method based on the invention with U.S. patent right.

④ The Bayh Dole method for promotion of Industry-university cooperation by giving universities their research performance under government assistance.

⑤ New patent right development for promotion of new type patent such as software patent and a business model patent
It is analyzed whether the conversion of patent policy is related to industrial growth here.

Fig. 3 shows the substance GNP in 1869 to 2001 (1996 standard). This figure shows that the annual average GNP growth rate of the first pro-patent period (1869-1928), that of the anti-patent period (1929-1985), and that of the second pro-patent period (1986-2001) are different considerably.

Fig.3. Transition of the substance GNP of U.S. (1869-2001, 96standard)

Fig.4 shows the patent application number and substance GNP of U.S. in 1869-1999. The correlation coefficient of both in 1869-1928 is 0.965 that in 1929-1985 is 0.863, and that in 1986-1999 is 0.982. The correlation coefficients of both pro-patent periods are higher than that of anti-patent period. Then it is expected that the patent policy contribute to industrial growth from above analysis.

Fig.4. The patent application number and the substance GNP of U.S. (1869-1999)

By the way, U.S. patent system has the following two special features, and these special features have given the big problem to the patent competition in the world.

1) First-to-inventor system

This system means to grant first real inventor patent right. Henry Kouda [14] explained the reason of adoption of U.S. that bad trend that aristocrats or large merchants had priority to gain the patent right instead of a real investor in Britain appeared again when U.S. enacted patent law. However, this system has the problem of complicity in the procedure to decide the real time when the invention is developed, and the problem that the investor is going to close invention institutionally.

2) Disclosure of the patent on application

This system has the problem that the investor continue changing the contents of application of one's patent until when the contents of the patent is popular in the world, and bring a suit about the patent.

Thus, U.S. is going to implement the synthetic intellectual property strengthening policy over the advanced technology combined with all systems, and is going to dominate the intellectual property rights in the world.

4.23 Patent policy of Japan and industrial promotion

It is called Yukichi Fukuzawa to have introduced the patent system of Europe and U.S. to Japan. In 1871, Japan publicly proclaimed its own law, called Provisional Regulations for Monopoly, which was the first patent law in Japan. However, the enforcement of this law was suspended the next year because the government office had problems with the operation of this law. Then, the first substantial patent law system of Japan becomes the “Patent Monopoly Act” delivered in 1885. By the 1st article 1st clause of this act, the requirements for a patent are considered as “invention of new and useful things”, especially the chief aim is set to invention of industrial technology. Thus, although patent law was fixed, it applied for invention to which the technical level of Japan of those days is low, and improvement of foreign basic technology takes the lead in many cases.

Then, the German method was enacted for the industrial new design system that can carry out protection encouragement of the small invention positively as a mother method on industrial policy in 1905. About encouragement of invention, these two legal systems were employed till now, and Japan's growth has been supported.

Fig.5 shows the relation between the number of patent applications and nominal GNP in Japan from 1959 when the present patent law was enforced to 1989 when the “bubble economy” collapsed. The correlation coefficient of both is 0.974, and it is very close to that of U.S. Therefore, it is thought that the possibility that an intellectual property right policy will contribute to the growth of GNP also in Japan is high. Arai [15] compared the technical trade volume accumulation in 1986 to 1995 of the Japan with that of U.S., and reported that it is U.S. predominance overwhelmingly. According to this analysis, the intellectual property strategy for winning to competition in fundamental ultramodern technology is considered in Japan.
5. CONCLUSION

From above examination, following points can be conducted intellectual property right.

1. Intellectual property right system contributes industrial promotion.
2. Institutionalization has big effect for conscious reform of people.
3. There is a tendency that patented product is especially useful to promote industries after the patent becomes invalid.
4. Not only development of patented invention but also arrangement of related infrastructures are necessary to promote industry.
5. National strategy for intellectual property right is necessary to make the big effect in industrial promotion.

From above result, it is meaningful to consider intellectual property right system for fewer children aged society. It was shown that the intellectual property strategy for winning in the ultramodern technology area is considered in Japan already. But it is also important for economic growth in the fewer children aged society to utilize small wisdom of elderly people author already pointed. And it is necessary to institute this new intellectual property right protect system to the fewer children aged society too.

Finally author proposes an idea for institution of the concrete new intellectual property right system.

This right have following special features.

1. Since it has actually happened already carried out based on experience, it is difficult to fulfill strict freshness.
2. The capability for management of application is low. Moreover, a possibility of interruption of application is high when examination takes time.
3. It does not need to be protected in many cases in a long period of time or the whole country.
4. Service has more shares than goods for objective of patent.
5. The most important thing for this new intellectual property right is to be carried out always.

Above features and purpose are almost similar to that Trademarks Act. Then, for economic growth in the fewer children aged society, author expects that advance examination of Trademarks Act should be done to introduce the concrete protection system for this new intellectual property right from now on and new appraisal standard for usefulness based on Kansei will be developed.

REFERENCES